MURATA ERIE SHORT FORM CATALOG

CATALOG NO. G-01-A

muRata ERIE®

MURATA ERIE NORTH AMERICA

This catalog illustrates the vast array of electronic components manufactured and distributed by Murata Erie North America. With manufacturing facilities located in Rockmart, Georgia; State College, Pennsylvania; and Trenton, Ontario, Canada, Murata Erie is obtaining worldwide recognition for its development and production of highly reliable electronic components. The Company's advanced design engineering and manufacturing technology, combined with automated production and instrumentation systems, provides a high degree of excellence in product quality. The reliability of these components is illustrated by approvals to UL, CSA and Military specifications.

Murata Erie is one of the world's largest manufacturers of fixed and variable ceramic capacitors and also offers a complete line of other electronic components including potentiometers, piezo alarms, resistor networks, posistors, piezo-electric ceramic filters and reasonators, crystal filters and oscillators, EMI/RFI filters, high voltage components and hybrid circuits.

Authorized Distributors
Many of the products found in this catalog are available from authorized Murata Erie distributors. This local availability assures the fastest possible delivery and is supported by the Murata Erie distribution centers in Georgia and the Northeast.

Application Assistance
Murata Erie maintains an experienced staff of application engineers at all of its facilities, who are available to provide any technical support that might be required relative to Murata Erie products.

☐ **Please have a Murata Erie technical representative contact me.**

☐ **Please send me complete information on the following Murata Erie product(s):**

☐ 01 Ceramic Disc Capacitors
☐ 02 Monolithic Ceramic Capacitors
☐ 03 High Voltage Ceramic Capacitors
☐ 04 Trimming Capacitors
☐ 05 Hi-Q Ceramic Capacitors
☐ 06 ATC Cross Reference
☐ 07 Surface Mounted Devices
☐ 08 Custom Designed Ceramic Capacitors
☐ 09 Ace Caps™
☐ 10 Resistor Networks/Modules
☐ 11 Focus Adjusting Resistors
☐ 12 High Voltage Resistors
☐ 13 Flyback Transformer
☐ 14 Posistors (PTC Resistors)
☐ 15 Thermistors (NTC Resistors)
☐ 16 Sensors
☐ 17 Trimming Potentiometers
☐ 18 Piezoelectric Alarms
☐ 19 Ceramic Filters
☐ 20 Crystal Oscillators; Dielectric Resonators, Filters, Duplexers and Isolators
☐ 23 Ceramic Resonators
☐ 25 Ultrasonic Microphones
☐ 26 EMI/RFI Filters and Filter Connectors
☐ 27 EMI/RFI Filters for PCB Applications
☐ 28 EMI/RFI Filters for Military Applications
☐ 34 CLA Capacitors
☐ 99 Short Form (All Products)
☐ 40 Design Engineering Kits

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Company_____

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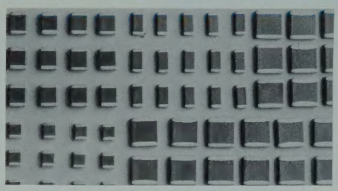
CHIPS, MONOLITHIC CERAMIC CAPACITORS



FEATURES

- Miniature size
- Wide capacitance, T.C., voltage and tolerance range
- Industry standard sizes
- 8 mm and 12 mm tape & reel for auto-placement
- Three end termination systems available
- Largest production volume and capacity in the industry

PART NUMBERING SYSTEM

GRM 40 --- X7R 103 K 050 A D

CAPACITOR TYPE AND SIZE
See below and following pages.

3-digit code appears as necessary to indicate special thickness requirements. Please consult your local sales office for details.

TEMPERATURE CHARACTERISTICS
Standard TC's (described herein)
COG=0, ±30ppm (Notes 1 & 2)
X7R=±15%
Z5U=+22, −56%
Y5V=+22, −82%
(See Note 2 below)
P2H=N150±60ppm
R2H=N220±60ppm
S2H=N330=±60ppm
T2H=N470±60ppm
U2J=N750±120ppm

CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow. For values below 10pF, the letter "R" is used as the decimal point and the last digit becomes significant.

CAPACITANCE TOLERANCE
(Note 2)
COG: (10pF or less)
B=±.1pF
★C=±.25pF
D=±.5pF
F=±1pF on special request (over 10pF)
F=±1%
G=±2%
★J=±5%
K=±10%
★X7R: K=±10%
M=±20%
J=±5% on special request
★Z5U: M=±20%
Z=+80, −20%
Y5V: Z=+80, −20%

VOLTAGE
Identified by a three-digit number.
500V available upon request.

MARKING
A=Unmarked
B=EIA Marking (standard)
C=Non-standard

PACKAGING

Reel Diameter	EIA-481-A
★7″ Paper	D
★7″ Plastic	L
13″ Paper	J
13″ Plastic	K
Bulk	B

T/R per EIA-481-1

NOTE 1: T.C. Tolerance (COG)

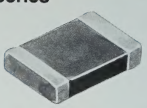
Capacitance (pF)	T.C. Tolerance (ppm)
10 or over	± 30 (G)
4.0-9.9	± 60 (H)
2.1-3.9	±120 (J)
.4-2.0	±250 (K)

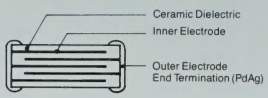
NOTE 2: Refer to EIA-RS198 for limitations

CHIP TERMINATION DIAGRAMS

Palladium Silver

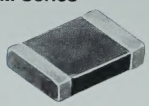
GR Series

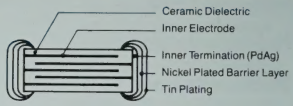




Nickel Barrier Layer (Standard)

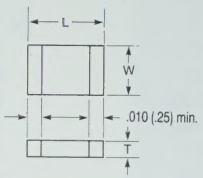
GRM Series





NOTE: Other Terminations Available Upon Request. Please Contact Local Sales Office.

16-200 VDC



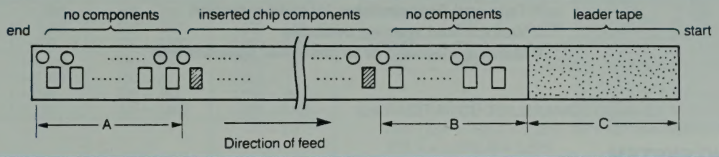
Type	EIA Desig.	Dimensions: in. (mm) L	W	T	Voltage	Capacitance (pF) (μF) ★COG (NPO)	★X7R	★Z5U	★Y5V
★GRM39	0603	.060±.008 (1.5±0.2)	.030±.008 (0.8±0.2)	.035 (0.9)	16V	—	.012 - .027	—	.027 - .1
					25V	—	3,900 - .015	—	1,000 - .039
					★50V	.5 - 330	220 - .01	1,000 - .01	1,000 - .027
					★100V	.5 - 160	220 - 3,300	1,000 - 3,300	1,000 - 4,700
					200V	.5 - 10	220 - 1,000	—	—
★GRM40	0805	.080±.008 (2.0±0.2)	.050±.008 (1.25±0.2)	.053 (1.35)	16V	—	.015 - .15	—	.033 - .68
					25V	—	2,200 - .068	—	2,200 - .22
					★50V	.5 - 1,500	220 - .047	1,000 - .1	1,000 - 1
					★100V	.5 - 680	220 - .015	1,000 - .015	1,000 - .022
					200V	.5 - 180	220 - 5,600	1,000 - 3,300	—
GRM40-1	1005	.100±.008 (2.5±0.2)	.050±.008 (1.25±0.2)	.050 (1.25)	25V	—	.01 - .047	—	2,200 - .15
					★50V	.5 - 1,500	220 - .047	1,000 - .068	1,000 - .082
					★100V	.5 - 680	220 - .012	1,000 - .015	.01 - .027
					200V	.5 - 180	220 - 5,600	1,000 - 3,300	—
★GRM42-6	1206	.125±.008 (3.2±0.2)	.060±.008 (1.5±0.2)	.060 (1.5)	16V	—	.1 - .22	—	.15 - 1.5
					25V	—	.018 - .18	—	.056 - .39
					★50V	.5 - 3,900	220 - .12	1,000 - .15	1,000 - .22
					★100V	.5 - 1,800	220 - .033	1,000 - .033	1,000 - .056
					200V	.5 - 360	220 - .015	1,000 - 6,800	—
★GRM42-2	1210	.125±.008 (3.2±0.2)	.100±.008 (2.5±0.2)	.060 (1.5)	16V	—	.12 - .33	—	.68 - 2.2
					25V	—	.082 - .27	—	.27 - .82
					★50V	.5 - 6,800	.082 - .22	.12 - .33	.18 - .47
					★100V	.5 - 3,900	.027 - .1	.027 - .068	.033 - .12
					200V	.5 - 1,000	.012 - .033	5,600 - .022	—
GRM43	1808	.180±.012 (4.6±0.3)	.080±.008 (2.03±0.2)	.060 (1.5)	25V	—	.033 - .24	—	.22 - .68
					★50V	150 - 4,700	3,900 - .22	.01 - .47	.12 - .47
					★100V	150 - 4,700	3,900 - .12	.01 - .12	.068 - .12
					200V	150 - 1,200	3,900 - .033	.01 - .022	—
★GRM43-2	1812	.180±.012 (4.6±0.3)	.125±.008 (3.2±0.2)	.080 (2.0)	16V	—	.39 - .56	—	2.2
					25V	—	.1 - .47	—	.22 - 1.0
					★50V	3,900 - .01	.18 - .47	.39 - .68	.39 - 1.0
					★100V	3,300 - .01	.082 - .22	.082 - .18	.068 - .27
					200V	680 - 2,200	.027 - .1	.018 - .047	—
★GRM43-4	1825	.180±.012 (4.6±0.3)	.250±.016 (6.35±0.4)	.080 (2.0)	25V	—	.27 - 1.0	—	.68 - 1.5
					★50V	5,600 - .016	.27 - 1.0	.56 - 1.2	.56 - 1.5
					★100V	5,600 - .015	.15 - .47	.15 - .39	.18 - .56
					200V	1,800 - 4,700	.047 - .1	.033 - .1	—
GRM44-1	2220	.220±.012 (5.6±0.3)	.200+.010 −.020 (5.1+0.25 −0.5)	.080 (2.0)	25V	—	.47 - 1.0	—	1.0 - 2.2
					50V	5,600 - .027	.27 - 1.0	1.0 - 1.5	1.0 - 2.2
					100V	5,600 - .027	.27 - .47	.33 - .39	.18 - .68
					200V	1,800 - 5,600	.056 - .12	.082 - .15	—
GRM44	2225	.220±.012 (5.6±0.3)	.250±.016 (6.35±0.4)	.080 (2.0)	25V	—	.47 - 1.2	—	1.0 - 3.3
					50V	.015 - .033	.47 - 1.0	1.2 - 1.8	1.0 - 3.3
					100V	.012 - .033	.27 - .56	.27 - .56	.47 - .82
					200V	3,900 - 6,800	.056 - .18	.068 - .12	—

★Chips available from authorized Distributors in standard EIA values in: C0G—J Tol., X7R—K Tol. and Z5U—M Tol. Tape and Reel is standard packaging.

TAPE & REEL
FOR AUTOMATIC INSERTION

DIMENSIONS: in. (mm)

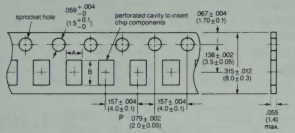
TAIL AND LEADER TAPE



	Tail Tape (A)	Empty Cavities (B)	Leader Tape (C)
EIA-481-1	6.3 to 8.3 (160 to 200)	6.3 to 7.4 (160 to 188)	9.0 to 9.8 (230 to 250)

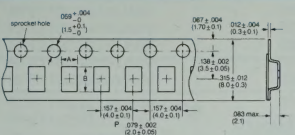
*20 to 30mm must be unsealed with remaining portion of empty cavities sealed.

8mm PUNCHED (PAPER)



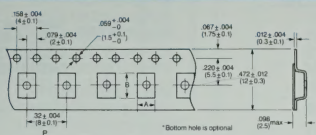
	GR(M)39 0603	GR(M)40 0805	GR(M)40-1 1005	GR(M)42-6 1206	GR(M)42-2 1210
Tape A max.	.047 (1.2)	.065 (1.65)	.072 (1.85)	.087 (2.2)	.116 (2.95)
Tape B max.	.079 (2.0)	.095 (2.4)	.118 (3.0)	.150 (3.8)	.144 (3.65)
Chip T max.	.035 (0.9)	.040 (1.0)	.040 (1.0)	.040 (1.0)	.040 (1.0)
Tape Pitch: P	.157±.004 (4.0±0.1)	.157±.004 (4.0±0.1)	.157±.004 (4.0±0.1)	.157±.004 (4.0±0.1)	.157±.004 (4.0±0.1)

8mm EMBOSSED (PLASTIC)



		GR(M)40 0805		GR(M)42-6 1206	GR(M)42-2 1210
Tape A max.		.061 (1.55)		.079 (2.0)	.114 (2.9)
Tape B max.	N/A	.093 (2.35)	N/A	.142 (3.6)	.142 (3.6)
Chip T max.		.053 (1.35)		.060 (1.5)	.060 (1.5)
Tape Pitch: P		.157±.004 (4.0±0.1)		.157±.004 (4.0±0.1)	.157±.004 (4.0±0.1)

12mm EMBOSSED (PLASTIC)



	GR(M)43 1808	GR(M)43-2 1812	GR(M)43-4 1825	GR(M)44-1 2220	GR(M)44 2225
Tape A max.	.102 (2.66)	.146 (3.7)	.197 (5.0)	.264 (6.7)	.264 (6.7)
Tape B max.	.205 (5.2)	.197 (5.0)	.268 (6.8)	.244 (6.2)	.248 (6.3)
Chip T max.	.060 (1.3)	.080 (2.0)	.080 (2.0)	.080 (2.0)	.080 (2.0)
Tape Pitch: P	.320±.004 (8±0.1)	.320±.004 (8±0.1)	.320±.004 (8±0.1)	.320±.004 (8±0.1)	.320±.004 (8±0.1)

TAPE & REEL CAPACITY

Chip Type	Tape	Reel	Capacity
40, 42-6, 42-2	8mm	7"	2,000 - 4,000
		13"	4,000 - 10,000
43, 43-2	12mm	7"	- 1,000
		13"	1,000 - 5,000
44-1	12mm	7"	- 500
		13"	1,000 - 5,000

CHIP MARKING

1. The capacitance value is expressed in pF.
2. A two character marking system will be used. The first character will be an alphabetic symbol and it will designate the 1st and 2nd figures of capacitance. The second character will be a numerical digit and it will designate the decimal multiplier of capacitance.

   Examples: A1=1 × 10^1 = 10pF
   J5=2.2 × 10^5 = 0.22μF
3. The marking shall appear in black or legible contrast. The orientation of the marking shall be as illustrated.

GR39 No Marking

GR40, 40-1

GR42-6, 42-2, 43 43-2, 44-1, 44

GR43-4

TC BAR CODE

Where chip marking is required, bar code designations for temperature coefficients (T.C.s) will be provided as listed below.

NPO = □□, N150 = □□, N220 = □□,
N330 = □□, N470 = □□, N750 = □□,
Y5V = □□, Z5U = □□, X7R = □□

Other T.C. Designators are available. Contact Factory.

T.C. Bar

Base Cap. Code

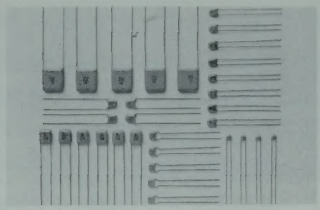
Multiplier

CHIP MARKING SPECIFICATIONS

Alphabetic Character	Significant Figures	Alphabetic Character	Significant Figures	Alphabetic Character	Significant Figures
A	1.0	L	2.7	W	6.8
B	1.1	M	3.0	X	7.5
C	1.2	N	3.3	Y	8.2
D	1.3	P	3.6	Z	9.1
E	1.5	Q	3.9	a	2.5
F	1.6	R	4.3	b	3.5
G	1.8	S	4.7	d	4.0
H	2.0	T	5.1	e	4.5
J	2.2	U	5.6	f	5.0
K	2.4	V	6.2	m	6.0
				n	7.0
				t	8.0
				y	9.0

Numeric Character	Decimal Multiplier
0	10^0
1	10^1
2	10^2
3	10^3
4	10^4
5	10^5
6	10^6
7	10^7
8	10^8
9	10^{-1}

MONOLITHIC CERAMIC CAPACITORS
CONFORMAL COATED
RADIAL LEADS



OUTSTANDING CHARACTERISTICS

- **Wide capacitance, T.C., voltage and tolerance range**
- **Industry standard sizes**
- **Tape and Reel available for auto-insertion**
- **Various lead spacing available**
- **Marking standard or to customer specification**

PART NUMBERING SYSTEM

RPE 110-XXX X7R 103 K 050V

CAPACITOR TYPE AND SIZE
Used only for tape and reel and other variations.

TEMPERATURE CHARACTERISTICS (Note 3)
COG=0, ±30ppm (Notes 1, 2)
X7R=±15%
Z5U=+22, −56%
Y5V=+22, −82%
(See Note 2 below)
P2H=N150±60ppm
R2H=N220±60ppm
S2H=N330=±60ppm
T2H=N470±60ppm
U2J=N750±120ppm

CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow. For values below 10pF, the letter "R" is used as the decimal point and the last digit becomes significant.

NOTES: T.C. Tolerance

1.

Capacitance (pF)	T.C. Tolerance (ppm)
10 and over	± 30(G)
4.0-9.9	± 60(H)
2.1-3.9	±120(J)
.4-2.0	±250(K)

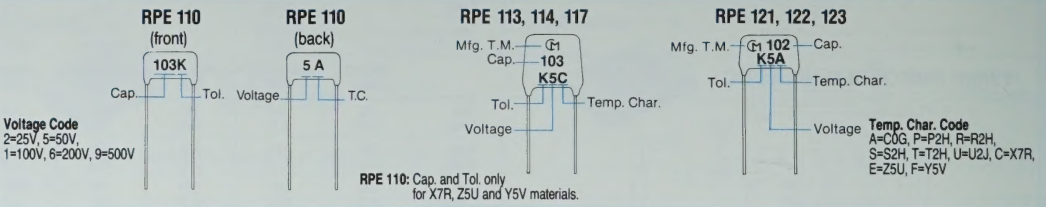
Refer to EIA RS-198 for limitations.

2. Refer to EIA RS-198 for limitations.
3. Other T.C.s available on special request.

CAPACITANCE TOLERANCE (Note 2)
COG: (10pF or less)
C=±.25pF
D=±.5pF
J=±5%
K=±10%
X7R: K=±10%
M=±20%
Z5U: M=±20%
Z=+80, −20%
Y5V: Z=+80, −20%

VOLTAGE
Identified by a two-digit number. 50 and 100V standard (200V and 500V on special request)

MARKINGS

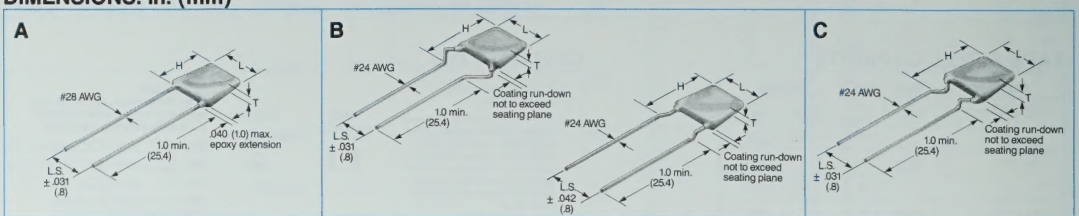


Voltage Code
2=25V, 5=50V,
1=100V, 6=200V, 9=500V

RPE 110: Cap. and Tol. only for X7R, Z5U and Y5V materials.

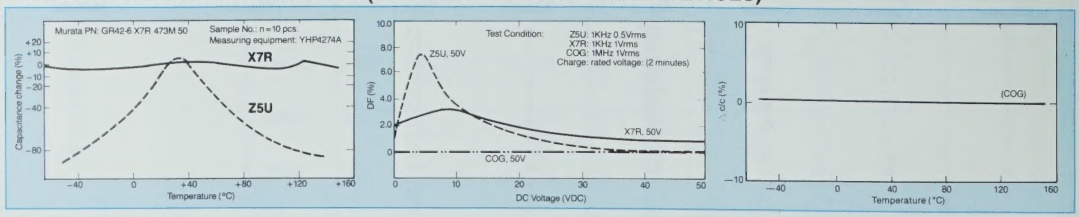
Temp. Char. Code
A=C0G, P=P2H, R=R2H,
S=S2H, T=T2H, U=U2J, C=X7R,
E=Z5U, F=Y5V

DIMENSIONS: in. (mm)



MURATA ERIE DESIGNATION	RPE 110	RPE 121/RPE122	RPE 123
L	.138 (3.5)	.200 (5.1)	.300 (7.6)
H	.120 (3.1)	.250 (6.4)	.275 (7.0)
T	.100 (2.5)	.125 (3.2)	.125 (3.2)
L.S.	.100 (2.5)	.100 (2.5)/.200 (5.1)	.200 (5.1)

TEMPERATURE CHARACTERISTICS (CHIPS AND RADIAL LEADED DEVICES)



MONOLITHIC CERAMIC CAPACITORS
CONFORMAL COATED
RADIAL LEADS

50-500 VDC

Type	Voltage Rating	Capacitance (pF) (μF) ★C0G (NPON) (A)	X7R (C)	★Z5U (E)
★RPE110	★ 50V	1 – 1,000	220 – .033	1,000 – .068
	★100V	1 – 1,000	220 – .012	1,000 – .015
	200V	1 – 130	220 – 5,600	1,000 – 5,600
★RPE121/ 122	★ 50V	1 – 4,300	330 – .15	1,000 – .33
	★100V	1 – 3,300	330 – .1	1,000 – .1
	200V	1 – 360	330 – .047	1,000 – .047
	500V	1 – 130	330 – 5,600	1,000 – 5,600
★RPE123	★ 50V	—	—	.47 – 1.0
	★100V	—	—	—
	200V	—	—	—
	500V	—	—	—
★RPE113	★ 50V	4,300 – .02	.15 – 1.0	.33 – 1.5
	★100V	2,000 – .012	.1 – .47	.1 – .68
	200V	360 – 3,900	.047 – .15	.047 – .15
	500V	130 – 1,000	5,600 – 0.33	5,600 – .033
★RPE114	★ 50V	.02 – .033	1.0 – 1.8	1.5 – 3.3
	★100V	.012 – .027	.47 – 1.0	.68 – 1.0
	200V	3,900 – .01	.15 – .56	.15 – .47
	500V	1,000 – 2,400	.033 – .1	.033 – .1
★RPE117	★ 50V	.033 – .068	1.8 – 2.2	3.3 – 5.6
	★100V	.027 – .056	1.0 – 1.5	1.0 – 2.2
	200V	.01 – .027	.56 – 1.0	.47 – 1.0
	500V	2,400 – 6,200	.1 – .22	.1 – .22

TEMPERATURE COMPENSATING 50-100 VDC

Type	Voltage Rating	Capacitance (pF) N150 (P2H) (P)	N220 (R2H) (R)	N330 (S2H) (S)	N470 (T2H) (T)	N750 (U2J) (U)
RPE110	50V	1 - 360	1 - 560	1 - 470	1 - 390	1 - 1,800
	100V	1 - 330	1 - 510	1 - 430	1 - 51	1 - 960
RPE121/ 122	50V	1 - 2,400	1 - 2,700	1 - 3,300	1 - 1,200	15 - 7,500
	100V	1 - 2,200	1 - 2,400	1 - 3,000	1 - 240	15 - 4,700

CAPACITANCE TOLERANCE (Note 2)

C0G: (10pF or less) C = ±25pF; D = ±5pF; (over 10pF) J = ±5%; K = ±10%;
X7R: K = ±10%; M = ±20%
Z5U: M = ±20%; Z = +80, −20%

TEMPERATURE CHARACTERISTICS

C0G=0±30 ppm (Note 1), -55°C to +125°C
X7R=±15%, -55°C to +125°C
Z5U=+22, -56%, +10°C to +85°C
N150=±60 ppm, -55°C to +125°C
N220=±60 ppm, -55°C to +125°C
N330=±60 ppm, -55°C to +125°C
N470=±60 ppm, -55°C to +125°C
N750=±120 ppm, -55°C to +125°C

NOTES: T.C. Tolerance

1.

Capacitance (pF)	T.C. Tolerance (ppm)
.4-2.0	±250 (K)
2.1-3.9	±120 (J)
4.0-9.9	± 60 (H)
10 and over	± 30 (G)

Refer to EIA RS198 for limitations.

2. Other T.C.s available on special request.

PREFERRED VALUES

Cap.	Part No. ±5%
C0G (NPO) 50V	
12pF	RPE110C0G120J50V
15	RPE110C0G150J50V
18	RPE110C0G180J50V
20	RPE110C0G200J50V
22	RPE110C0G220J50V
27	RPE110C0G270J50V
33	RPE110C0G330J50V
36	RPE110C0G360J50V
39	RPE110C0G390J50V
47	RPE110C0G470J50V
56	RPE110C0G560J50V
68	RPE110C0G680J50V
82	RPE110C0G820J50V
100	RPE110C0G101J50V
120	RPE110C0G121J50V
150	RPE110C0G151J50V
180	RPE110C0G181J50V
220	RPE110C0G221J50V
270	RPE110C0G271J50V
330	RPE110C0G331J50V
390	RPE110C0G391J50V
470	RPE110C0G471J50V
560	RPE110C0G561J50V
680	RPE110C0G681J50V
820	RPE110C0G821J50V
1000	RPE110C0G102J50V
820	RPE121C0G821J50V
820	RPE122C0G821J50V
1000	RPE121C0G102J50V
1000	RPE122C0G102J50V
1200	RPE121C0G122J50V
1200	RPE122C0G122J50V
1500	RPE121C0G152J50V
1500	RPE122C0G152J50V
1800	RPE121C0G182J50V
1800	RPE122C0G182J50V
2200	RPE121C0G222J50V
2200	RPE122C0G222J50V
2700	RPE121C0G272J50V
2700	RPE122C0G272J50V
3300	RPE121C0G332J50V
3300	RPE122C0G332J50V
3900	RPE122C0G392J50V
4700	RPE123C0G472J50V
5600	RPE123C0G562J50V
6800	RPE113C0G682J50V
8200	RPE113C0G822J50V
.01μF	RPE113C0G103J50V
.012	RPE113C0G123J50V
.015	RPE113C0G153J50V

Cap.	Part No. ±5%
C0G (NPO) 50V	
.018μF	RPE114C0G183J50V
.022	RPE114C0G223J50V
.027	RPE114C0G273J50V
.033	RPE117C0G333J50V
.056	RPE117C0G563J50V
.062	RPE117C0G683J50V
C0G (NPO) 100V	
12pF	RPE110C0G120J100V
15	RPE110C0G150J100V
18	RPE110C0G180J100V
20	RPE110C0G200J100V
22	RPE110C0G220J100V
27	RPE110C0G270J100V
33	RPE110C0G330J100V
36	RPE110C0G360J100V
39	RPE110C0G390J100V
47	RPE110C0G470J100V
56	RPE110C0G560J100V
68	RPE110C0G680J100V
75	RPE110C0G750J100V
82	RPE110C0G820J100V
100	RPE110C0G101J100V
120	RPE110C0G121J100V
150	RPE110C0G151J100V
180	RPE110C0G181J100V
220	RPE110C0G221J100V
270	RPE110C0G271J100V
330	RPE110C0G331J100V
390	RPE110C0G391J100V
470	RPE110C0G471J100V
560	RPE110C0G561J100V
680	RPE110C0G681J100V
560	RPE122C0G561J100V
680	RPE121C0G681J100V
680	RPE122C0G681J100V
750	RPE121C0G751J100V
750	RPE122C0G751J100V
820	RPE121C0G821J100V
820	RPE122C0G821J100V
1000	RPE121C0G102J100V
1000	RPE122C0G102J100V
1200	RPE121C0G122J100V
1200	RPE122C0G122J100V
1500	RPE121C0G152J100V
1500	RPE122C0G152J100V
1800	RPE121C0G182J100V
1800	RPE122C0G182J100V
2200	RPE121C0G222J100V
2200	RPE122C0G222J100V

Cap.	Part No. ±5%
C0G (NPO) 100V	
2700pF	RPE121C0G272J100V
2700	RPE122C0G272J100V
3300	RPE121C0G332J100V
3300	RPE122C0G332J100V
3900	RPE123C0G392J100V
4700	RPE123C0G472J100V
5600	RPE123C0G562J100V
6200	RPE123C0G622J100V
6800	RPE123C0G682J100V
8200	RPE113C0G822J100V
.01μF	RPE113C0G103J100V
.012	RPE113C0G123J100V
.015	RPE114C0G153J100V
.018	RPE114C0G183J100V
.022	RPE114C0G223J100V
.027	RPE114C0G273J100V
.033	RPE114C0G333J100V
.033	RPE117C0G333J100V
.047	RPE117C0G473J100V
.056	RPE117C0G563J100V
X7R 50V	**±10%**
220pF	RPE110X7R221K50V
270	RPE110X7R271K50V
330	RPE110X7R331K50V
390	RPE110X7R391K50V
470	RPE110X7R471K50V
560	RPE110X7R561K50V
680	RPE110X7R681K50V
750	RPE110X7R751K50V
820	RPE110X7R821K50V
1000	RPE110X7R102K50V
1000	RPE122X7R102K50V
1200	RPE110X7R122K50V
1500	RPE110X7R152K50V
1800	RPE110X7R182K50V
2200	RPE110X7R222K50V

★ All preferred values are available as standard through authorized Murata Erie Distributors.

PREFERRED VALUES

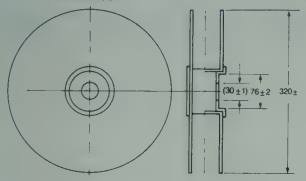
Cap.	Part No. ±10%
X7R 50V	
2700pF	RPE110X7R272K50V
3300	RPE110X7R332K50V
3300	RPE122X7R332K50V
3600	RPE110X7R362K50V
3900	RPE110X7R392K50V
4700	RPE110X7R472K50V
4700	RPE122X7R472K50V
5600	RPE110X7R562K50V
6200	RPE110X7R622K50V
6800	RPE110X7R682K50V
7500	RPE110X7R752K50V
.01μF	RPE110X7R103K50V
.01	RPE121X7R103K50V
.01	RPE122X7R103K50V
.015	RPE110X7R153K50V
.015	RPE122X7R153K50V
.018	RPE110X7R183K50V
.018	RPE122X7R183K50V
.022	RPE110X7R223K50V
.022	RPE121X7R223K50V
.022	RPE122X7R223K50V
.027	RPE121X7R273K50V
.027	RPE122X7R273K50V
.033	RPE110X7R333K50V
.033	RPE121X7R333K50V
.033	RPE122X7R333K50V
.039	RPE121X7R393K50V
.039	RPE122X7R393K50V
.047	RPE121X7R473K50V
.047	RPE122X7R473K50V
.056	RPE122X7R563K50V
.056	RPE122X7R563K50V
.068	RPE121X7R683K50V
.068	RPE122X7R683K50V
.082	RPE121X7R823K50V
.082	RPE122X7R823K50V
.1	RPE121X7R104K50V
.1	RPE122X7R104K50V
.12	RPE121X7R124K50V
.12	RPE122X7R124K50V
.15	RPE121X7R154K50V
.15	RPE122X7R154K50V
.18	RPE121X7R184K50V
.18	RPE122X7R184K50V
.22	RPE123X7R224K50V
.27	RPE123X7R274K50V
.33	RPE123X7R334K50V
.39	RPE113X7R394K50V
.47	RPE113X7R474K50V
.56	RPE113X7R564K50V
.68	RPE113X7R684K50V
.82	RPE113X7R824K50V
1.0	RPE113X7R105K50V
1.2	RPE114X7R125K50V
1.5	RPE114X7R155K50V
1.8	RPE114X7R185K50V
2.2	RPE117X7R225K50V
X7R 100V	
220pF	RPE110X7R221K100V
270	RPE110X7R271K100V
330	RPE110X7R331K100V
470	RPE110X7R471K100V
560	RPE110X7R561K100V
680	RPE110X7R681K100V
750	RPE110X7R751K100V
820	RPE110X7R821K100V
1000	RPE110X7R102K100V
1500	RPE110X7R152K100V
1800	RPE110X7R182K100V
2200	RPE110X7R222K100V
2700	RPE110X7R272K100V
3300	RPE110X7R332K100V
3600	RPE110X7R362K100V
3900	RPE110X7R392K100V
4700	RPE110X7R472K100V

Cap.	Part No. ±10%
X7R 100V	
5600pF	RPE110X7R562K100V
6800	RPE110X7R682K100V
8200	RPE110X7R822K100V
.01μF	RPE110X7R103K100V
.01	RPE121X7R103K100V
.01	RPE122X7R103K100V
.012	RPE110X7R123K100V
.012	RPE122X7R123K100V
.015	RPE121X7R153K100V
.015	RPE122X7R153K100V
.018	RPE121X7R183K100V
.018	RPE122X7R183K100V
.022	RPE121X7R223K100V
.022	RPE122X7R223K100V
.027	RPE121X7R273K100V
.027	RPE122X7R273K100V
.033	RPE121X7R333K100V
.033	RPE122X7R333K100V
.039	RPE121X7R393K100V
.039	RPE122X7R393K100V
.047	RPE121X7R473K100V
.047	RPE122X7R473K100V
.056	RPE121X7R563K100V
.056	RPE122X7R563K100V
.068	RPE121X7R683K100V
.068	RPE122X7R683K100V
.082	RPE121X7R823K100V
.082	RPE122X7R823K100V
.1	RPE121X7R104K100V
.1	RPE122X7R104K100V
.12	RPE123X7R124K100V
.15	RPE123X7R154K100V
.18	RPE113X7R184K100V
.22	RPE113X7R224K100V
.27	RPE113X7R274K100V
.33	RPE113X7R334K100V
.39	RPE114X7R394K100V
.47	RPE114X7R474K100V
.56	RPE114X7R564K100V
.68	RPE114X7R684K100V
.82	RPE114X7R824K100V
1.0	RPE114X7R105K100V
1.2	RPE117X7R125K100V
Z5U 50V	**±20%**
1000pF	RPE110Z5U102M50V
1500	RPE110Z5U152M50V
1800	RPE110Z5U182M50V
2200	RPE110Z5U222M50V
2700	RPE110Z5U272M50V
3300	RPE110Z5U332M50V
3900	RPE110Z5U392M50V
4700	RPE110Z5U472M50V
5600	RPE110Z5U562M50V
6800	RPE110Z5U682M50V
8200	RPE110Z5U822M50V
.01μF	RPE110Z5U103M50V
.01	RPE121Z5U103M50V
.01	RPE122Z5U103M50V
.015	RPE110Z5U153M50V
.015	RPE122Z5U153M50V
.022	RPE110Z5U223M50V
.022	RPE122Z5U223M50V
.033	RPE110Z5U333M50V
.033	RPE122Z5U333M50V
.047	RPE110Z5U473M50V
.047	RPE122Z5U473M50V
.068	RPE110Z5U683M50V
.068	RPE122Z5U683M50V
.1	RPE121Z5U104M50V
.1	RPE122Z5U104M50V
.15	RPE121Z5U154M50V
.15	RPE122Z5U154M50V
.18	RPE121Z5U184M50V
.18	RPE122Z5U184M50V
.22	RPE121Z5U224M50V

Cap.	Part No. ±20%
Z5U 50V	
.22μF	RPE122Z5U224M50V
.27	RPE121Z5U274M50V
.27	RPE122Z5U274M50V
.33	RPE121Z5U334M50V
.33	RPE122Z5U334M50V
.47	RPE123Z5U474M50V
.68	RPE123Z5U684M50V
1.0	RPE123Z5U105M50V
1.5	RPE113Z5U155M50V
2.2	RPE114Z5U225M50V
3.3	RPE114Z5U335M50V
4.7	RPE117Z5U475M50V
5.6	RPE117Z5U565M50V
Z5U 100V	
1000pF	RPE110Z5U102M100V
1500	RPE110Z5U152M100V
1800	RPE110Z5U182M100V
2200	RPE110Z5U222M100V
2700	RPE110Z5U272M100V
3300	RPE110Z5U332M100V
3900	RPE110Z5U392M100V
4700	RPE110Z5U472M100V
5600	RPE110Z5U562M100V
6800	RPE110Z5U682M100V
.01μF	RPE110Z5U103M100V
.01	RPE121Z5U103M100V
.01	RPE122Z5U103M100V
.015	RPE110Z5U153M100V
.015	RPE122Z5U153M100V
.018	RPE121Z5U183M100V
.018	RPE122Z5U183M100V
.022	RPE121Z5U223M100V
.022	RPE122Z5U223M100V
.033	RPE121Z5U333M100V
.033	RPE122Z5U333M100V
.039	RPE121Z5U393M100V
.039	RPE122Z5U393M100V
.047	RPE121Z5U473M100V
.047	RPE122Z5U473M100V
.068	RPE121Z5U683M100V
.068	RPE122Z5U683M100V
.1	RPE121Z5U104M100V
.1	RPE122Z5U104M100V
.12	RPE123Z5U124M100V
.15	RPE123Z5U154M100V
.22	RPE113Z5U224M100V
.33	RPE113Z5U334M100V
.47	RPE113Z5U474M100V
.68	RPE114Z5U684M100V
1.0	RPE114Z5U105M100V
1.5	RPE117Z5U155M100V
2.2	RPE117Z5U225M100V

TAPE & REEL FOR AUTO-INSERTION

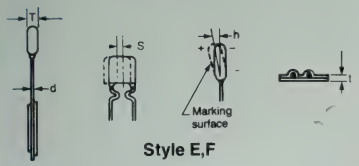
Reel Pack



STANDARD QUANTITY PER REEL

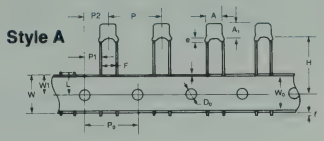
	REEL	AMMO
RPE121	2500	2000
RPE122	2500	2000
RPE123	2500	2000
RPE113	2000	2000
RPE114	1500	1500

Style A,B,C,D

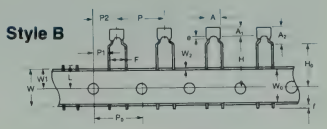


Style E,F

Style A

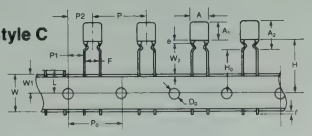


Style B



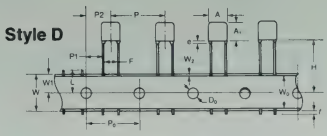
Fuji—RPE122-901
Panasert—RT-RPE122-905
Avisert, Universal—RPE122-906

Style C



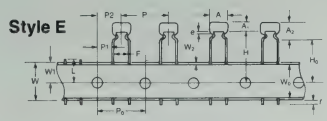
Fuji—RPE113-901

Style D



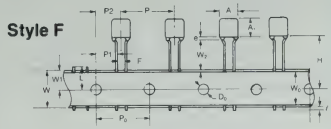
Fuji, Panasert—RB-RPE113-902
-RPE113-903
Avisert, Universal—RPE113-907

Style E



Fuji—RPE123-951
Avisert, Universal—RPE123-906

Style F



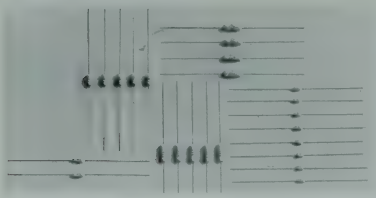
Fuji, Panasert—RB-RPE114-903
Avisert, Universal—RPE114-907

DIMENSIONS: in. (mm)

POSITION		RPE122-901	RPE122-905	RPE122-906	RPE113-901	RPE113-902	RPE113-903	RPE113-907	RPE123-901*	RPE123-906*	RPE123-951*	RPE114-903	RPE114-907
STYLE	DIM.	B	B	B	C	D	D	D	E	E	E	F	F
Taping Pitch	P	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Feed Hole Pitch	P_0	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2	12.7±0.2
Feed Hole Position	P2	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3	6.35±1.3
Feed Hole Position	P1	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7	3.85±0.7
Lead Space	F	5.20±0.4	5.20±0.4	5.20±0.4	5.20±0.4	5.20±0.4	5.20±0.4	5.20±0.4	5.20±0.4	5.08±0.5	5.20±0.4	5.20±0.4	5.20±0.4
Body Width	A	5.0 max	5.0 max	5.0 max	7.5 max	7.5 max	7.5 max	7.5 max	7.5 max	7.5 max	7.5 max	10.0 max	10.0 max
Body Height	A_1	5.0 max	5.0 max	5.0 max	7.5 max	7.5 max	7.5 max	7.5 max	5.0 max	5.0 max	5.0 max	10.0 max	10.0 max
Body Height	A_2	6.3 max	8.5 max	6.3 max	10.0 max	—	—	—	6.3 max	6.3 max	6.3 max	13.5 max	—
Body Thickness	T	3.15 max	3.15 max	3.15 max	4.0 max	4.0 max	3.15 max	3.15 max	3.15 max	3.15 max	3.15 max	3.81 max	3.81 max
Deviation Along Tape	ΔS	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0
Width of Tape Carrier	W	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5	18.0±0.5
Half Width of Tape Carrier	W1	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$	$9.0^{+0}_{-0.5}$
Lead Length	H_0	16.0±0.5	16.0±0.5	20.0±0.5	16.0±0.5	—	—	—	16.0±0.5	20.0±0.5	16.0±0.5	—	—
Lead Length	H	18.0±1.0	20.0±1.0	22.0±1.0	19.0±1.0	16.5±0.5	17.5±0.5	20.0±0.5	18.0±1.0	22.0±1.0	18.0±1.0	17.5±1.0	20.0±0.5
Lead Protrusion	l	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0	+0.5 to −1.0
Diameter of Feed Hole	D_0	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1	4.0±0.1
Lead Wire	d	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05	0.5±0.05
Total Tape Thickness	t	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2	0.7±0.2
Deviaton Across Tape	Δh	±1.0	±1.0	±1.0	±1.0	±1.0	±1.0	±1.0	±1.0	±1.0	±1.0	±1.0	±1.0
Cutting Position Failure	L	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$	$11.0^{+0}_{-1.0}$
Width of Masking Tape	W_0	12.5 min	12.5 min	12.5 min	12.5 min	12.5 min	12.5 min	12.5 min	12.5 min	12.5 min	12.5 min	12.5 min	12.5 min
Margin Between Tapes	W_2	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5	1.5±1.5
Parts Length	e	1.5 max	1.5 max	1.5 max	1.0 max	1.0 max	1.0 max	1.0 max	1.0 max	1.0 max	1.0 max	1.5 max	1.5 max

*RPE 123 Series — Low Profile — contact factory for further information.

MONOLITHIC CERAMIC CAPACITORS
CONFORMAL COATED AXIAL LEADS



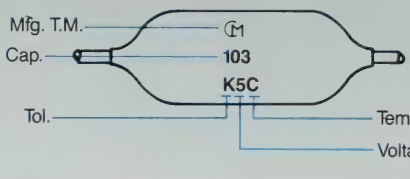
OUTSTANDING CHARACTERISTICS

- **Wide capacitance, T.C., voltage and tolerance range**
- **Industry standard sizes**
- **Tape and Reel available for auto-insertion**
- **Marking standard or to customer specification**

PART NUMBERING SYSTEM

SL10	5	E	104	Z	A	A
CAPACITOR TYPE AND SIZE	**VOLTAGE** 5=50V 1=100V 2=200V	**TEMP. CHAR.** A=C0G C=X7R E=Z5U	**CAPACITANCE VALUE** Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow. For fractional values below 10pF, the letter "R" is used as the decimal point and the last digit becomes significant.	**TOLERANCE** C0G J = ±5% K = ±10% X7R K = ±10% M = ±20% Z5U Z = +80, −20% M = ±20%	**FAILURE RATE** A=Standard	A=Standard Reels

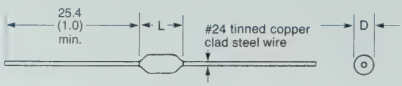
MARKINGS



Voltage Code
5=50V, 1=100V,
2=200V

Temp. Char. Code
A=C0G, C=X7R,
E=Z5U

DIMENSIONS: in. (mm)



Capacitor Type and Size	L max.	D max.
SL10	.170 (4.32)	.100 (2.54)
SL11	.170 (4.32)	.120 (3.05)
SL20	.260 (6.60)	.100 (2.54)
SL30	.290 (7.37)	.150 (3.81)
SL40	.400 (10.16)	.150 (3.81)

TAPE & REEL FOR AUTO-INSERTION

DIMENSIONS: in. (mm)

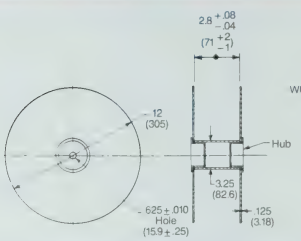


Figure 1 Standard Tape Reel

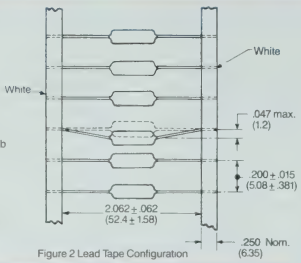


Figure 2 Lead Tape Configuration

NOTES:

1. Standard quantities per reel are

SL 10	5000pcs
SL 11	5000pcs
SL 20	5000pcs
SL 30	2500pcs
SL 40	2500pcs

2. Standard information marked on reel label is:
   a: Customers Part No.
   b: Our Part No.
   c: Quantity
   d: Inspection No.

3. Maximum 0.25% of capacitors per reel quantity may be missing with no consecutive misses.

PREFERRED VALUES

COG

Cap. Value	Part No.
200VDC	
10pF	SL102A100JAA
12	SL102A120JAA
15	SL102A150JAA
18	SL102A180JAA
22	SL102A220JAA
27	SL102A270JAA
33	SL102A330JAA
39	SL102A390JAA
47	SL102A470JAA
56	SL102A560JAA
68	SL102A680JAA
82	SL102A820JAA
100	SL102A101JAA
120	SL102A121JAA
100VDC	
150pF	SL101A151JAA
180	SL101A181JAA
220	SL101A221JAA
270	SL101A271JAA
330	SL101A331JAA
390	SL101A391JAA
470	SL101A471JAA
560	SL101A561JAA
680	SL101A681JAA
820	SL101A821JAA
1,000	SL101A102JAA
1,200	SL201A122JAA
1,500	SL201A152JAA
1,800	SL201A182JAA
2,200	SL201A222JAA
2,700	SL301A272JAA
3,300	SL301A332JAA
3,900	SL301A392JAA
4,700	SL301A472JAA
5,600	SL301A562JAA
6,800	SL301A682JAA
8,200	SL301A822JAA
.01μF	SL401A103JAA
.012	SL401A123JAA
.015	SL401A153JAA
50VDC	
1,000pF	SL105A102JAA
1,000	SL105A102KAA
1,200	SL115A122JAA
1,500	SL115A152JAA
1,800	SL115A182JAA
2,200	SL115A222JAA
2,700	SL115A272JAA
1,800	SL205A182JAA
4,700	SL305A472JAA
8,200	SL305A822JAA
10,000	SL405A103JAA
10,000	SL405A103KAA
12,000	SL405A123JAA

X7R

Cap. Value	Part No.
200VDC	
220pF	SL102C221KAA
270	SL102C271KAA
330	SL102C331KAA
100VDC	
390pF	SL101C391KAA
470	SL101C471KAA
560	SL101C561KAA
680	SL101C681KAA
820	SL101C821KAA
1,000	SL101C102KAA
1,200	SL101C122KAA
1,500	SL101C152KAA
1,800	SL101C182KAA
2,200	SL101C222KAA
2,700	SL101C272KAA
3,300	SL101C332KAA
3,900	SL101C392KAA
4,700	SL101C472KAA
5,600	SL101C562KAA
6,800	SL101C682KAA
8,200	SL101C822KAA
10,000	SL101C103KAA
12,000	SL101C123KAA
15,000	SL201C153KAA
18,000	SL201C183KAA
22,000	SL201C223KAA
27,000	SL201C273KAA
33,000	SL301C333KAA
39,000	SL301C393KAA
47,000	SL301C473KAA
56,000	SL301C563KAA
68,000	SL301C683KAA
82,000	SL301C823KAA
100,000	SL301C104KAA
120,000	SL401C124KAA
150,000	SL401C154KAA
50VDC	
8,200pF	SL105C822KAA
10,000	SL105C103KAA
12,000	SL105C123KAA
15,000	SL105C153KAA
18,000	SL105C183KAA
22,000	SL105C223KAA
27,000	SL105C273KAA
33,000	SL105C333KAA
39,000	SL105C393KAA
47,000	SL105C473KAA
56,000	SL115C563KAA
68,000	SL115C683KAA
82,000	SL115C823KAA
100,000	SL115C104KAA
100,000	SL115C104MAA
56,000	SL205C563KAA
68,000	SL205C683KAA
82,000	SL205C823KAA
100,000	SL205C104KAA
100,000	SL205C104MAA
120,000	SL305C124KAA
150,000	SL305C154KAA
180,000	SL305C184KAA
220,000	SL305C224KAA
270,000	SL305C274KAA
330,000	SL305C334KAA

Z5U

Cap. Value	Part No.
100VDC	
.01 μF	SL101E103MAA
.01	SL101E103ZAA
.015	SL101E153MAA
.022	SL101E223MAA
.033	SL201E333MAA
.047	SL201E473MAA
.068	SL301E683MAA
.10	SL301E104MAA
.10	SL301E104ZAA
.15	SL301E154MAA
.18	SL401A184MAA
.22	SL401E224MAA
.22	SL401E224ZAA
50VDC	
.01 μF	SL105E103MAA
.01	SL105E103ZAA
.015	SL105E153MAA
.022	SL105E223MAA
.033	SL105E333MAA
.047	SL105E473MAA
.047	SL105E473ZAA
.068	SL105E683MAA
.10	SL105E104MAA
.15	SL105E154MAA
.22	SL105E224MAA
.22	SL105E224ZAA
.10	SL105E104ZAA
.33	SL115E334MAA
.33	SL115E334ZAA
.33	SL305E334MAA
.33	SL305E334ZAA
.47	SL305E474MAA
.47	SL305E474ZAA
.68	SL405E684MAA
.82	SL405E824MAA
1.0	SL405E105MAA
1.0	SL405E105ZAA

All preferred values are available as standard through authorized Murata Erie Distributors.

PORCELAIN MONOLITHIC CAPACITORS FOR MICROWAVE APPLICATIONS

MA SERIES 10, 50 & 70 SERIES

CONFIGURATIONS AND DIMENSIONS – CASE SIZE 1

Type				Configuration	Dimensions: in. (mm)			Band	Termination
MIL-C-55681	P90±20 ppm/°C	COG±30 ppm/°C	X7R*		Length	W±.010 (.25)	T max.	Y +.010 −.005 (+.25/−.1)	
CDR11	MA10	MA50	MA70*		.055±.010 (1.4±.25)	.055 (1.4)	.055** (1.4)	.010 (.25)	Palladium Silver
CDR12	MA11	MA51	MA71*		.07 MAX. (1.8 MAX.)				Palladium Silver & Solder (Sn 62)
CDR12	MA18	MA58	MA78*						Palladium Silver, Ni Interface & Solder (Sn 62)

*X7R Styles not available as Mil Spec (CDR) type.

**.065" (1.65) Max Thickness, X7R

PART NUMBERING SYSTEM – CASE SIZE 1

M A 1 8 101 J

CUBIC MONOLITHIC

A-STD SERIES

DIMENSIONAL AND T.C. CODE
1: P90
5: C0G
7: X7R

TERMINATION CODE:
8: Pd/Ag, Ni interface, Solder (Sn62) (Preferred)
0: Pd/Ag
1: Pd/Ag & Solder (Sn62) (Non-Preferred)

CAPACITANCE CODE:
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow. For values below 10pF, the letter "R" is used as the decimal point and the last digit becomes significant.

TOLERANCES:
*B: ±0.1pF
*C: ±0.25pF
*D: ±0.5pF
F: ±1%
G: ±2%
J: ±5%
**K: ±10%
**M: ±20%
**Z: +80% −20%
*Available below 10pF only.
**X7R Styles

MA 10 & 50 SERIES, P90 & C0G – CASE SIZE 1

Cap. Code	Cap. pF	Cap. Tol.	WVDC*
0R1	0.1	B	150
0R2	0.2	B	150
0R3	0.3	B,C	150
0R4	0.4	B,C	150
0R5	0.5	B,C,D	150
0R6	0.6	B,C,D	150
0R7	0.7	B,C,D	150
0R8	0.8	B,C,D	150
0R9	0.9	B,C,D	150
★1R0	1.0	B,C,D	150
1R1	1.1	B,C,D	150
1R2	1.2	B,C,D	150
1R3	1.3	B,C,D	150
1R4	1.4	B,C,D	150
1R5	1.5	B,C,D	150
1R6	1.6	B,C,D	150
1R7	1.7	B,C,D	150
1R8	1.8	B,C,D	150
1R9	1.9	B,C,D	150
2R0	2.0	B,C,D	150
2R2	2.2	B,C,D	150
2R4	2.4	B,C,D	150
2R7	2.7	B,C,D	150
3R0	3.0	B,C,D	150
3R3	3.3	B,C,D	150
3R6	3.6	B,C,D	150
3R9	3.9	B,C,D	150
4R3	4.3	B,C,D	150
★4R7	4.7	B,C,D	150
5R1	5.1	B,C,D	150
★5R6	5.6	B,C,D	150
6R2	6.2	B,C,D	150
★6R8	6.8	B,C,J,K,M	150
★7R5	7.5	B,C,J,K,M	150
8R2	8.2	B,C,J,K,M	150
9R1	9.1	B,C,J,K,M	150
★100	10	F,G,J,K,M	150
110	11	F,G,J,K,M	150
120	12	F,G,J,K,M	150
130	13	F,G,J,K,M	150
150	15	F,G,J,K,M	150
160	16	F,G,J,K,M	150
180	18	F,G,J,K,M	150
200	20	F,G,J,K,M	150
★220	22	F,G,J,K,M	150
240	24	F,G,J,K,M	150
270	27	F,G,J,K,M	150
300	30	F,G,J,K,M	150
330	33	F,G,J,K,M	150
360	36	F,G,J,K,M	150
★390	39	F,G,J,K,M	150
430	43	F,G,J,K,M	150
470	47	F,G,J,K,M	150
510	51	F,G,J,K,M	150
★560	56	F,G,J,K,M	150
620	62	F,G,J,K,M	150
680	68	F,G,J,K,M	150
750	75	F,G,J,K,M	150
820	82	F,G,J,K,M	150
910	91	F,G,J,K,M	150
★101	100	F,G,J,K,M	150
111**	110	F,G,J,K,M	150
121**	120	F,G,J,K,M	150
131**	130	F,G,J,K,M	150
151**	150	F,G,J,K,M	150
161**	160	F,G,J,K,M	150
181**	180	F,G,J,K,M	150
201**	200	F,G,J,K,M	150
221**	220	F,G,J,K,M	150
241**	240	F,G,J,K,M	150
271**	270	F,G,J,K,M	150
301**	300	F,G,J,K,M	150
331**	330	F,G,J,K,M	150
361**	360	F,G,J,K,M	150
391**	390	F,G,J,K,M	150
431**	430	F,G,J,K,M	150
471**	470	F,G,J,K,M	150
511**	510	F,G,J,K,M	150
561**	560	F,G,J,K,M	150
621**	620	F,G,J,K,M	150
681**	680	F,G,J,K,M	150
751**	750	F,G,J,K,M	150
821**	820	F,G,J,K,M	150
911**	910	F,G,J,K,M	150
102**	1000	F,G,J,K,M	150

@125°C

**Extended Cap Range, C0G only

MA 70 SERIES, X7R – CASE SIZE 1

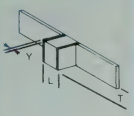
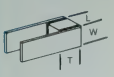
Cap. Code	Cap. pF	Cap. Tol.	WVDC***
511	510	K,M,Z	50
561	560	K,M,Z	50
621	620	K,M,Z	50
681	680	K,M,Z	50
751	750	K,M,Z	50
821	820	K,M,Z	50
911	910	K,M,Z	50
102	1000	K,M,Z	50
112	1100	K,M,Z	50
122	1200	K,M,Z	50
132	1300	K,M,Z	50
152	1500	K,M,Z	50
162	1600	K,M,Z	50
182	1800	K,M,Z	50
202	2000	K,M,Z	50
222	2200	K,M,Z	50
242	2400	K,M,Z	50
272	2700	K,M,Z	50
302	3000	K,M,Z	50
332	3300	K,M,Z	50
362	3600	K,M,Z	50
392	3900	K,M,Z	50
432	4300	K,M,Z	50
472	4700	K,M,Z	50
512	5100	K,M,Z	50
562	5600	K,M,Z	50
622	6200	K,M,Z	50
682	6800	K,M,Z	50
752	7500	K,M,Z	50
822	8200	K,M,Z	50
912	9100	K,M,Z	50
103	10000	K,M,Z	50

★ MA18 is available as standard through authorized Murata Erie Distributors—J Tol.

PORCELAIN MONOLITHIC CAPACITORS FOR MICROWAVE APPLICATIONS

MA20, 60, 80 & MB 20 SERIES

CONFIGURATIONS AND DIMENSIONS – CASE SIZE 2

Type					Configuration	Dimensions: in. (mm)			Band	Termination
MIL-C-55681	P90±20 ppm/°C	P90±30 ppm/°C	C0G±30 ppm/°C	X7R*		L±.020 (.5)***	W±.010 (.25)	T max.	Y±.010 (.25)	
CDR13	MA20	MB20	MA60	MA80*		.110 (2.8)	.110 (2.8)	.100** (2.5)	.015 (.4)	Palladium Silver
—	MA21	MB21	MA61	MA81*		.130 MAX. (3.3)				Palladium Silver & Solder (Sn62)
CDR14	*MA28	MB28	MA68	MA88*		.130 MAX.				Palladium Silver, Ni Interface & Solder (Sn62)
CDR21	MA22	MB22	MA62	MA82*		.135 (3.4)	.100 MAX. (2.5)	.110 (2.8) ±0.10 (.25)		Microstrip see note 1
—	MA23	MB23	MA63	MA83*						
—	MA24	MB24	MA64	MA84*						Silver Wire #26AWG .016 (.4) Dia. × .5 (12.7) Long (typical)
CDR23	—	—	—	—						Solder/Coated #26AWG .016 (.4) Dia. × .5 (12.7) Long (typical)
—	MA25	MB25	MA65	MA85*			.110	.100		Wide Axial Silver Ribbon see note 1
—	MA26	MB26	MA66	MA86*						Narrow Axial Silver Ribbon see note 2
—	MA27	MB27	MA67	MA87*						Silver Wire #26AWG .016 (.4) Dia. × .5 (12.7) Long (typical)

*X7R Styles not available as MIL Spec (CDR) type. ***All CDR Types ±.015" (.38) **.115 (2.92) Max Thickness, X7R T.C.

NOTES: 1. Ag ribbon .093 (2.3) ±.005 (.1) Wide × .004 (.1) ±.001 (.03) Thick × .250 (6.35) Long (typical)
2. Ag ribbon .050 (1.25) ±.005 (.1) Wide × .004 (.1) ±.001 (.03) Thick × .250 (6.35) Long (typical)

PART NUMBERING SYSTEM – CASE SIZE 2

M A 2 8 101 J

CUBIC MONOLITHIC

A-STD SERIES B-MAGNA Q (P90 only)

DIMENSIONAL AND T.C. CODE
2: P90
6: C0G
8: X7R

TERMINATION CODE:
8: PD/Ag, Ni interface, solder (Sn62) (Preferred)
0: Pd/Ag
1: Pd/Ag & Solder (Sn62) (Non-Preferred)
2: MicroStrip
3: Radial Ribbon
4: Radial Wire
5: Axial Ribbon
6: Narrow Ribbon
7: Axial Wire

CAPACITANCE CODE:
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow. For values below 10pF, the letter "R" is used as the decimal point and the last digit become significant.

TOLERANCES: ZEROS
*B: ±.01pF
*C: ±0.25pF
*D: ±0.5pF
F: ±1%
G: ±2%
J: ±5%
**K: ±10%
**M: ±20%
**Z: +80% –20%
*Available below 10pF only.
**X7R Styles

★ MA28 is available as standard through authorized Murata Erie Distributors. See page 14 for values.

MA 20 & 60, P90 & C0G–CASE SIZE 2

★MA18 is available as standard through authorized Murata Erie Distributors—J Tol.

Cap. Code	Cap. pF	Cap. Tol.	WVDC*
0R1	0.1	B	500
0R2	0.2	B	500
0R3	0.3	B,C	500
0R4	0.4	B,C	500
0R5	0.5	B,C,D	500
0R6	0.6	B,C,D	500
0R7	0.7	B,C,D	500
0R8	0.8	B,C,D	500
0R9	0.9	B,C,D	500
1R0	1.0	B,C,D	500
1R1	1.1	B,C,D	500
1R2	1.2	B,C,D	500
1R3	1.3	B,C,D	500
1R4	1.4	B,C,D	500
1R5	1.5	B,C,D	500
1R6	1.6	B,C,D	500
1R7	1.7	B,C,D	500
1R8	1.8	B,C,D	500
1R9	1.9	B,C,D	500
2R0	2.0	B,C,D	500
2R1	2.1	B,C,D	500
2R2	2.2	B,C,D	500
2R4	2.4	B,C,D	500
2R7	2.7	B,C,D	500
3R0	3.0	B,C,D	500
3R3	3.3	B,C,D	500
3R6	3.6	B,C,D	500
*3R9	3.9	B,C,D	500
4R3	4.3	B,C,D	500
4R7	4.7	B,C,D	500
5R1	5.1	B,C,D	500
*5R6	5.6	B,C,D	500
*6R2	6.2	B,C,D	500
6R8	6.8	B,C,J,K,M	500
7R5	7.5	B,C,J,K,M	500
8R2	8.2	B,C,J,K,M	500
9R1	9.1	B,C,J,K,M	500
*100	10	F,G,J,K,M	500
110	11	F,G,J,K,M	500
120	12	F,G,J,K,M	500
130	13	F,G,J,K,M	500
*150	15	F,G,J,K,M	500
160	16	F,G,J,K,M	500
*180	18	F,G,J,K,M	500
*200	20	F,G,J,K,M	500
220	22	F,G,J,K,M	500
240	24	F,G,J,K,M	500
*270	27	F,G,J,K,M	500
300	30	F,G,J,K,M	500
*330	33	F,G,J,K,M	500
*360	36	F,G,J,K,M	500
390	39	F,G,J,K,M	500
430	43	F,G,J,K,M	500
*470	47	F,G,J,K,M	500
510	51	F,G,J,K,M	500
*560	56	F,G,J,K,M	500
620	62	F,G,J,K,M	500
*680	68	F,G,J,K,M	500
750	75	F,G,J,K,M	500
820	82	F,G,J,K,M	500
910	91	F,G,J,K,M	500
*101	100	F,G,J,K,M	500
111	110	F,G,J,K,M	300
121	120	F,G,J,K,M	300
131	130	F,G,J,K,M	300
151	150	F,G,J,K,M	300
161	160	F,G,J,K,M	300
181	180	F,G,J,K,M	300
201	200	F,G,J,K,M	300
*221	220	F,G,J,K,M	200
241	240	F,G,J,K,M	200
271	270	F,G,J,K,M	200
301	300	F,G,J,K,M	200
331	330	F,G,J,K,M	200
361	360	F,G,J,K,M	200
391	390	F,G,J,K,M	200
431	430	F,G,J,K,M	200
*471	470	F,G,J,K,M	200
511	510	F,G,J,K,M	100
561	560	F,G,J,K,M	100
621	620	F,G,J,K,M	100
681	680	F,G,J,K,M	50
751	750	F,G,J,K,M	50
821	820	F,G,J,K,M	50
911	910	F,G,J,K,M	50
*102	1000	F,G,J,K,M	50
112**	1100	F,G,J,K,M	50
122**	1200	F,G,J,K,M	50
132**	1300	F,G,J,K,M	50
152**	1500	F,G,J,K,M	50
162**	1600	F,G,J,K,M	50
182**	1800	F,G,J,K,M	50
202**	2000	F,G,J,K,M	50
222**	2200	F,G,J,K,M	50
242**	2400	F,G,J,K,M	50
272**	2700	F,G,J,K,M	50
302**	3000	F,G,J,K,M	50
332**	3300	F,G,J,K,M	50
362**	3600	F,G,J,K,M	50
392**	3900	F,G,J,K,M	50
432**	4300	F,G,J,K,M	50
472**	4700	F,G,J,K,M	50
502**	5000	F,G,J,K,M	50
512**	5100	F,G,J,K,M	50

*@125°C

*@125°C

*@125°C

*@125°C

**Extended Cap Range, C0G only

MA 80 SERIES, X7R–CASE SIZE 2

Cap. Code	Cap. pF	Cap. Tol.	WVDC**
512	5100	K,M,Z	100
562	5600	K,M,Z	100
622	6200	K,M,Z	100
682	6800	K,M,Z	100
752	7500	K,M,Z	100
822	8200	K,M,Z	100
912	9100	K,M,Z	100
103	10000	K,M,Z	100
113	11000	K,M,Z	100
123	12000	K,M,Z	100
133	13000	K,M,Z	100
153	15000	K,M,Z	100
163	16000	K,M,Z	100
183	18000	K,M,Z	100
203	20000	K,M,Z	100
223	22000	K,M,Z	100
243	24000	K,M,Z	100
273	27000	K,M,Z	100
303	30000	K,M,Z	100
333	33000	K,M,Z	100
363	36000	K,M,Z	100
393	39000	K,M,Z	100
433	43000	K,M,Z	100
473	47000	K,M,Z	100
513	51000	K,M,Z	100
563	56000	K,M,Z	100
623	62000	K,M,Z	100
683	68000	K,M,Z	100
753	75000	K,M,Z	100
823	82000	K,M,Z	100
913	91000	K,M,Z	100
104	100000	K,M,Z	100

*@85°C

*@85°C

*@85°C

*@85°C

MB 20 SERIES, MAGNA "Q," P90–CASE SIZE 2

Cap. Code	Cap. pF	Cap. Tol.	WVDC*
0R3	0.3	B,C	1000
0R4	0.4	B,C	1000
0R5	0.5	B,C,D	1000
0R6	0.6	B,C,D	1000
0R7	0.7	B,C,D	1000
0R8	0.8	B,C,D	1000
0R9	0.9	B,C,D	1000
1R0	1.0	B,C,D	1000
1R1	1.1	B,C,D	1000
1R2	1.2	B,C,D	1000
1R3	1.3	B,C,D	1000
1R4	1.4	B,C,D	1000
1R5	1.5	B,C,D	1000
1R6	1.6	B,C,D	1000
1R7	1.7	B,C,D	1000
1R8	1.8	B,C,D	1000
1R9	1.9	B,C,D	1000
2R0	2.0	B,C,D	1000
2R2	2.2	B,C,D	1000
2R4	2.4	B,C,D	1000
2R7	2.7	B,C,D	1000
3R0	3.0	B,C,D	1000
3R3	3.3	B,C,D	1000
3R6	3.6	B,C,D	1000
3R9	3.9	B,C,D	1000
4R3	4.3	B,C,D	1000
4R7	4.7	B,C,D	1000
5R1	5.1	B,C,D	1000
5R6	5.6	B,C,D	1000
6R2	6.2	B,C,D	1000
6R8	6.8	B,C,J,K,M	1000
7R5	7.5	B,C,J,K,M	1000
8R2	8.2	B,C,J,K,M	1000
9R1	9.1	B,C,J,K,M	1000
100	10	F,G,J,K,M	1000
110	11	F,G,J,K,M	500
120	12	F,G,J,K,M	500
130	13	F,G,J,K,M	500
150	15	F,G,J,K,M	500
160	16	F,G,J,K,M	500
180	18	F,G,J,K,M	500
200	20	F,G,J,K,M	500
220	22	F,G,J,K,M	500
240	24	F,G,J,K,M	500
270	27	F,G,J,K,M	500
300	30	F,G,J,K,M	500
330	33	F,G,J,K,M	500
360	36	F,G,J,K,M	500
390	39	F,G,J,K,M	500
430	43	F,G,J,K,M	500
470	47	F,G,J,K,M	300
510	51	F,G,J,K,M	300
560	56	F,G,J,K,M	300
620	62	F,G,J,K,M	300
680	68	F,G,J,K,M	100
750	75	F,G,J,K,M	100
820	82	F,G,J,K,M	100
910	91	F,G,J,K,M	100
101	100	F,G,J,K,M	100

*@175°C

*@175°C

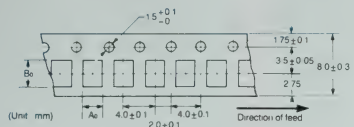
*@175°C

*@175°C

SPECIFICATIONS

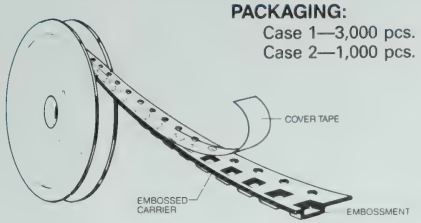
Quality Factor:	MA 10/20/50/60; Exceeds MIL-C-55681 MB 20 Series; Exceeds MIL-C-55681
Dissipation Factor:	MA 70/80; 2.5% maximum @ 1.0VRMS maximum (f = 1KHz)
Temperature Coefficient:	MA 10/20 Series P90 ± 20ppm/°C, (−55°C to +125°C) MB 20 Series; P90 ±30ppm/°C, (−55°C to +175°C) MA 50/60 Series; C0G (NPO±30ppm/°C −55°C to +125°C) MA 70/80 Series; ±15% maximum (−55°C to +125°C)
Insulation Resistance:	MA 10/20 1000K Megohms at +25°C, 100K Megohms at +125°C MB 20 1000K Megohms at +25°C 100K Megohms min. at +175°C MA 50/60 1000K Megohms at +25°C, 100K Megohms at +125°C MA70/80 100K Megohms or 1000 Megohm μF min., whichever is less (@25°C) 10K Megohms or 100 Megohm μF min., whichever is less (@125°C)
Dielectric Test Voltage:	MA 10/20/50/60/70/80 MB 20; 250% of WVDC for 5 seconds
Capacitance Drift:	Meets or Exceeds MIL-C-55681 (Does not appy for MA 70/80)
Aging:	Negligible for MA 10/20/50/60 and MB 20, MA 70/80; 2.5% per decade maximum
Environmental Tests:	MIL-STD-202
Shock:	Method 213, Condition J
Vibration:	Method 204, Condition B
Moisture Resistance:	Method 106
Solderability:	Method 208
Immersion:	Method 104, Condition B
Barometric Pressure:	Method 105, Condition B
Resistance to Soldering Heat:	Method 210, Condition B
Thermal Shock:	Method 107, Condition A
Life:	Method 108, Condition F
MARKING:	MA 10/20/50/60, MB 20; Laser mark Capacitance Code, Tolerance Code, Logo (where space permits) MA 70/80; Consult factory for marking details.

DIMENSIONS: in (mm)



NOTE: 1 A_o & B_o ARE DETERMINED BY MAXIMUM SPECIFIED LENGTH AND WIDTH OF COMPONENTS PLUS 0.4 ± 0.2 (0.016 ± 0.008), PLUS THE ADDITIONAL REQUIREMENTS THAT COMPONENTS NOT BE ALLOWED TO ROTATE MORE THAN 20° WITHIN THE CAVITY CLEARANCE OR WHICHEVER CONDITION OCCURS FIRST.

TAPE-AND-REEL PACKAGING



PACKAGING:
Case 1—3,000 pcs.
Case 2—1,000 pcs.

ELECTRICAL PROPERTIES

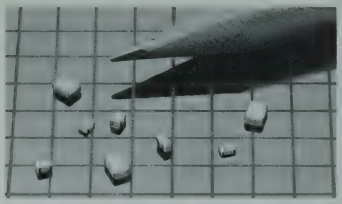
Property	Value	Test Method
Surface Resistivity	1.8×10^3 ohm/square	ASTM D-257
Volume Resistivity	1.4×10^2 ohm-cm	ASTM D-257
Electrostatic Decay Time At 0% RH At 10% RH	 <1.25 sec (0%RH) <0.1 sec (10%RH)	 Fed. Test Method Std. 101C Test Method 4046 (or) MIL B-81705B

CONDUCTIVE TAPE

Advantages	Benefits
Conductive	Prevents static charge build-up
Flexibility	Insures against crazing, cracking and brittleness
Dimensional strength	Drive loading will not elongate sprocket holes
Dimensional stability	Smooth, reliable running on pick and place machines

Other packaging options available – Consult Factory

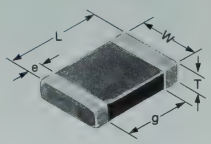
GRH708-710 SERIES
LOW COST HIGH FREQUENCY CHIP CAPACITORS FOR COMMUNICATIONS APPLICATIONS



The GRH708-710 Series was designed specifically as an alternative to "cubic" chip capacitors in high-volume applications where low cost is a primary design objective.

FEATURES
- **Miniature sizes**
- **Stable C0G temperature coefficient**
- **Very high Q at high frequencies**
- **High RF power handling capabilities**
- **Low noise**

DIMENSIONS: in (mm)



	GRH708	GRH710
L	.080 ± .012 (2.0 ± 0.3)	.125 ± .016 (3.2 ± 0.7)
W	.050 ± .012 (1.25 ±0 0.3)	.100 ± .012 (2.5 ± 0.3)
T(max.)	.050 (1.25)	.060 (1.5)
g(min.)	.03 (0.7)	.04 (1.0)
e(min.)	.01 (0.25)	.012 (0.3)

SPECIFICATIONS

Operating Temperature Range	−55 to +125°C
Temperature Coefficient	0 ± 30 ppm/°C
Working Voltage	See table, Page 17.
Dielectric Test Voltage (D.C.)	250% of rated working voltage (except 500 Volt rated @ 200%)
Capacitance Tolerance	C, D, G, J, K Available, Specials on request
Quality Factor (Q)/ESR	Consult Factory for Q. and ESR.
Insulation Resistance	@ 25°C: 1 to 470 pF: 1000K Megohms Min. over 470 pF: 100K Megohms Min. @ 125°C: 0.1 to 470 pF: 100K Megohms Min. over 470 pF: 10K Megohms Min.
Marking:	All capacitors are marked with Logo, Capacitance Code and Tolerance Code (where space permits) ink stamping or laser marking available

PART NUMBERING

GRH708 C0G 220 K 100 B L

CAPACITOR TYPE AND SIZE
GRH = Nickel Barrier layer solder. (Preferred)
GR = Palladium/Silver (Non-Preferred)

TEMPERATURE CHARACTERISTIC
Standard TC
C0G = 0 ±30ppm/°C
−55°C to +125°C

CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures Last digit specifies the number of zeros to follow. For values below 10 pF, the letter "R" is used as the decimal point and the last digit becomes significant.

CAPACITANCE TOLERANCE
C0G: (10pF or less)
C=±.25pF
D=±.5pF

(Over 10pF)
G=±2%
J=±5%
K=±10%

VOLTAGE
Identified by a three-digit number.

MARKING
A = No Marking
B = EIA Marking
C = Non-standard

PACKAGING
B = Bulk
L = 7" Reel

ENVIRONMENTAL

Aging:	Negligible
Environmental Tests:	MIL-STD-202
Shock:	Method 213, Condition J
Vibration:	Method 204, Condition B
Moisture Resistance:	Method 106
Solderability:	Method 208

Immersion:	Method 104, Condition B
Barometric Pressure:	Method 105, Condition B
Resistance to Soldering Heat:	Method 210, Condition B
Thermal Shock:	Method 107, Condition A
Life:	Method 108, Condition F

CAPACITANCE VALUES – GRH708

Cap. & Tol. in pF	Rated VDC
★1.0 ± .25	200
1.1 ± .25	200
★1.2 ± .25	200
1.3 ± .25	200
1.4 ± .25	200
★1.5 ± .25	200
1.6 ± .25	200
1.7 ± .25	200
★1.8 ± .25	200
1.9 ± .25	200
2.0 ± .25	200
2.1 ± .25	200
★2.2 ± .25	200
2.4 ± .25	200
★2.7 ± .25	200
3.0 ± .25	200
★3.3 ± .25	200
3.6 ± .25	200
★3.9 ± .25	200
4.2 ± .25	200
★4.7 ± .25	200
5.1 ± .25	200
★5.6 ± .50	200
6.2 ± .50	200

Cap. & Tol. in pF	Rated VDC
★6.8 ± .50	200
7.5 ± .50	200
★8.2 ± .50	200
9.1 ± .50	200
★ 10 ± .50	200
11 ± 5%	200
★12 ± 5%	200
13 ± 5%	200
14 ± 5%	200
★15 ± 5%	200
16 ± 5%	200
★18 ± 5%	200
20 ± 5%	200
★22 ± 5%	200
25 ± 5%	200
24 ± 5%	200
★27 ± 5%	200
28 ± 5%	200
30 ± 5%	200
32 ± 5%	200
★33 ± 5%	200
34 ± 5%	200
36 ± 5%	200
★39 ± 5%	200

Cap. & Tol. in pF	Rated VDC
43 ± 5%	200
★47 ± 5%	200
51 ± 5%	200
★56 ± 5%	200
62 ± 5%	200
★68 ± 5%	200
75 ± 5%	200
★82 ± 5%	200
91 ± 5%	200
★100 ± 5%	200
110 ± 5%	100
★120 ± 5%	100
130 ± 5%	100
140 ± 5%	100
★150 ± 5%	50
160 ± 5%	50

CAPACITANCE VALUES – GRH710

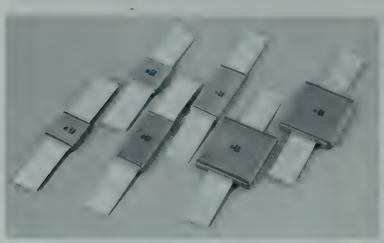
Cap. & Tol. in pF	Rated VDC
★3.3 ± .25	500
3.6 ± .25	500
★3.9 ± .25	500
4.3 ± .25	500
★4.7 ± .25	500
5.1 ± .25	500
★5.6 ± .50	500
6.2 ± .50	500
★6.8 ± .50	500
7.5 ± .50	500
★8.2 ± .50	500
9.1 ± .50	500
★ 10 ± .50	500
11 ± 5%	500
★12 ± 5%	500
13 ± 5%	500
14 ± 5%	500
★15 ± 5%	500
16 ± 5%	500
★18 ± 5%	500
20 ± 5%	500
★22 ± 5%	500
25 ± 5%	500
24 ± 5%	500

Cap. & Tol. in pF	Rated VDC
★27 ± 5%	500
28 ± 5%	500
30 ± 5%	500
32 ± 5%	500
★33 ± 5%	500
34 ± 5%	500
36 ± 5%	500
★39 ± 5%	500
43 ± 5%	500
★47 ± 5%	500
51 ± 5%	500
★56 ± 5%	500
62 ± 5%	500
★68 ± 5%	500
75 ± 5%	500
★82 ± 5%	500
91 ± 5%	500
★100 ± 5%	500
110 ± 5%	500
★120 ± 5%	500
130 ± 5%	300
140 ± 5%	300
★150 ± 5%	300
160 ± 5%	200

Cap. & Tol. in pF	Rated VDC
★180 ± 5%	200
200 ± 5%	200
★220 ± 5%	200
240 ± 5%	100
★270 ± 5%	100
300 ± 5%	100
★330 ± 5%	100
360 ± 5%	100
★390 ± 5%	100
430 ± 5%	100
★470 ± 5%	100
510 ± 5%	50
★560 ± 5%	50
620 ± 5%	50
★820 ± 5%	50
910 ± 5%	50
★1000 ± 5%	50

★Available through authorized Murata Erie Distributors: Tol. under 10pF as indicated over 10pF, J.

GLASS ENCAPSULATED MINIATURE RF POWER MULTILAYER CAPACITORS



Miniature UFP fixed ceramic capacitors are specifically designed for high voltage and high RF current high frequency applications. They are ideally suited to the latest aerospace and commercial mobile and fixed communication equipment.

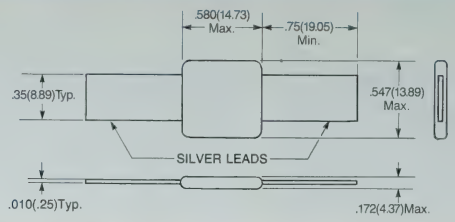
Glass encapsulation protects UFP capacitors against corona, contaminants and other environmental factors. Wide, fine silver lead terminations assure minimum inductance and high RF current capabilities. They can withstand temperatures far in excess of soldered units due to solderless lead attachment.

PART NUMBERING SYSTEM

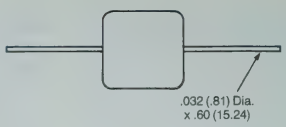
UFP	1	7	15	1	K
UFP	CASE SIZE	TERMINATION Blank = Ribbon 7= Wire	CAPACITANCE CODE First two digits of Capacitance Value in pF Note: R Signifies decimal point	NO. OF ZEROES Following the first two digits of the capacitance value in pF	CAPACITANCE TOLERANCE J = ±5% (standard) K = ±10% (standard) Other tolerances are available, contact factory.

DIMENSIONS: in. (mm)

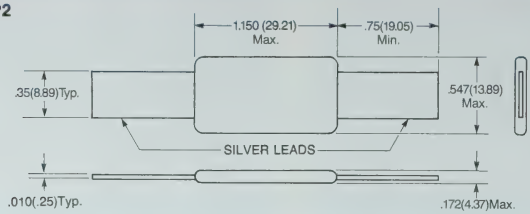
UFP1



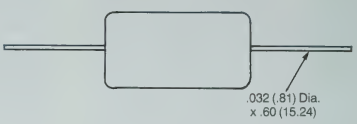
UFP17



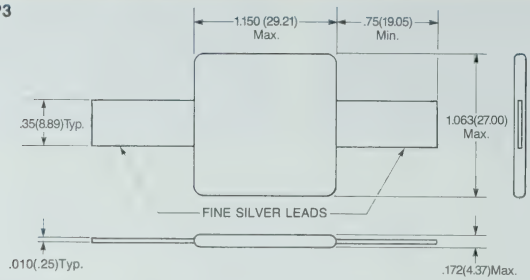
UFP2



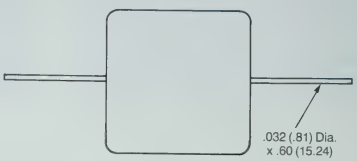
UFP27



UFP3



UFP37



SPECIFICATIONS

Current: 8 amperes at 25°C (Derated for higher temperatures)

Q: 5,000 min. at 1 MHz and 25°C for values 1,000pF and smaller

Tolerances: ±0.5pF for values below 10pF
±5%, ±10% for higher values

*NPO T.C. also available. Consult factory.

Power: 12 KVAR at 25°C typical

Voltage: See chart below

***Temperature Coefficient:** +90, ±20ppm/°C at 1 MHz (-55°C to +125°C)

Testing: RF tested to rated specifications

Marking: All capacitors stamp marked with company I.D., cap. code and tolerance

MODELS	RANGE OF VALUES (pF)	WVDC	TEST VOLTAGE DC	RF CURRENT AMPS. RMS at +25°C	RF VOLTAGE RMS at +25°C	KVAR* RATING at +25°C	VOLTAGE LIMITING IMPEDANCE (OHMs)	CURRENT LIMITING IMPEDANCE (OHMs)
UFP1	10 to 150	3,600	7,000	8	3,000	12	750	187.5
	160 to 330	2,500	4,500	8	2,000	12	333.3	187.5
	360 to 620	1,200	2,400	8	1,000	6	166.7	93.75
	680 to 1,300	600	1,200	8	500	3	83.3	46.88
	1,500 to 3,000	300	600	8	250	1.5	41.67	23.44
UFP2	10 to 75	5,400	10,000	8	5,000	18	1,390	281
UFP3	82 to 150	5,400	10,000	8	5,000	18	1,390	281
	160 to 330	3,600	7,000	8	3,000	18	500	281
	360 to 620	2,500	4,500	8	2,000	12	333.3	187.5

*NOTE
1. When the impedance of the capacitor is higher than the value shown, the limiting factor is the RF voltage shown.
2. When the impedance of the capacitor is below the value shown, the limiting factor is the RF current shown.
3. Between these two impedance limits, the KVAR rating is the limiting factor. Formulas for voltage and current are:

$$V = (1{,}000 \times KVAR \times IMPEDANCE)^{\frac{1}{2}} \qquad I = \left(\frac{1{,}000 \times KVAR}{IMPEDANCE}\right)^{\frac{1}{2}}$$

4. RF current rating derates 0.4%/°C from +25°C rating at all higher temperatures to +125°C.
5. KVAR rating derates 0.5%/°C from +25°C rating at all higher temperatures to +125°C.
6. RF voltage derates 0.16%/°C from +25°C rating at all higher temperatures to +125°C.

CAPACITY VALUES (pF) & TOLERANCES

★UFP1					UFP2		UFP3		NOTE
10	33	★100	★330	1,000	10	33	82	240	All values are available in ±5% and ±10% tolerances.
11	36	110	★360	1,100	11	36	91	270	
12	39	★120	390	1,200	12	39	100	300	All values are available in UFP1 model.
13	43	130	430	1,300	13	43	110	330	
15	47	★150	★470	1,500	15	47	120	360	Values up to and including 75 pF are available in UFP2 model.
16	51	160	510	1,600	16	51	130	390	
18	56	180	★560	1,800	18	56	150	430	Values 82 pF and above, are available in UFP3 model.
20	62	★200	620	2,000	20	62	160	470	
22	68	★220	680	2,200	22	68	180	510	Values below 10 pF are available as specials in UFP2 model (D tolerance, only).
24	75	240	750	2,400	24	75	200	560	
27	82	★270	820	2,700	27		220	620	
30	91	★300	★910	3,000	30				

PREFERRED VALUES

CASE CODE	CAP. CODE	TOL.
UFP1 & UFP2	100	J,K
	110	J,K
	120	J,K
	130	J,K
	150	J,K
	160	J,K
	180	J,K
	200	J,K
	220	J,K
	240	J,K
	270	J,K
	300	J,K
	330	J,K
	360	J,K
	390	J,K
	430	J,K
	470	J,K
	510	J,K
	560	J,K
	620	J,K
	680	J,K
	750	J,K

CASE CODE	CAP. CODE	TOL.
UFP1 & UFP3	820	J,K
	910	J,K
	101	J,K
	111	J,K
	121	J,K
	131	J,K
	151	J,K
	161	J,K
	181	J,K
	201	J,K
	221	J,K
	241	J,K
	271	J,K
	301	J,K
	331	J,K
	361	J,K
	391	J,K
	431	J,K
	471	J,K
	511	J,K
	561	J,K
	621	J,K

CASE CODE	CAP. CODE	TOL.
UFP1	681	J,K
	751	J,K
	821	J,K
	911	J,K
	102	J,K
	112	J,K
	122	J,K
	132	J,K
	152	J,K
	162	J,K
	182	J,K
	202	J,K
	222	J,K
	242	J,K
	272	J,K
	302	J,K

★Available as standard through authorized Murata Erie Distributors: J Tol.

UNICERAM HIGH-Q (UY) MINIATURE CERAMIC CAPACITORS

Uniceram High Q ceramic fixed capacitors offer the *highest available* Q — a minimum of 5,000 @ 1 MHz. Typical Q's are greater than 10,000 over catalog capacitance range.
Precise ceramic dielectric layers are fused into a solid monolithic structure. Silver leads are bonded to the capacitor by a unique solderless process. As a result, Uniceram High Q capacitors maintain stability despite extreme voltage and frequency variations, and severe environmental ambients. Their proprietary ceramic monolithic construction also yields high power handling capabilities per unit volume as well as the ability to operate at an ambient temperature well in excess of the melting point of solder.
Uniceram High Q capacitor can be provided with radial wire, axial ribbon or axial wire leads. They are also available as unencapsulated chips. These units are ideal for applications where low inductance is essential.

FEATURES

- **Meets MIL-C-11272 and MIL-C-23269 applicable requirements regarding shock, vibration, hermeticity, temperature cycling, solder immersion and salt spray.**
- **High capacitance per unit volume.**
- **Available in five sizes covering 0.5pF to 3,000pF.**
- **Other ceramic materials, metalizing bands, form factors and voltages available on special order.**
- **Designed for direct connection to microwave substrates, headers, printed circuit boards and hybrid circuits.**

PART NUMBERING SYSTEM

UY 0 2 13 1 J

HIGH Q Uniceram Designation
UY Fixed Capacitor (Glass encapsulated)
WY Chip Capacitor (unencapsulated)

LEADED CONFIGURATIONS
Axial Ribbon 0
Axial Wire 2
Radial Wire 6

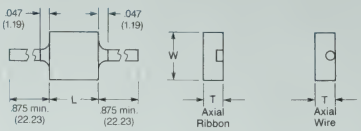
CASE SIZE
1
2
3
4
5

CAPACITANCE CODE
First two digits of Capacitance Value in pF Note: R signifies decimal point.

NO. OF ZEROES
Following the two digits of the capacitance value in pF.

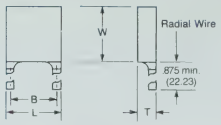
CAPACITANCE TOLERANCE
B = ± .1pF
C = ± .25pF
D = ± .50pF
F = ± 1%
G = ± 2%
J = ± 5%
K = ± 10%

DIMENSIONS: in. (mm)

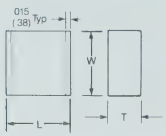


MODEL				Lead Size ±.003 (.08)	
Axial Ribbon	Axial Wire	L & W ±.031 (.78)	T ±.031 (.78)	Wire	Ribbon
UY01	UY21	.109 (2.77)	.062 (1.57)	.023 (.58)	.050 (1.27) × .010 (.25)
UY02	UY22	.140 (3.56)	.062 (1.57)	.023 (.58)	.050 (1.27) × .010 (.25)
UY03	UY23	.187 (4.75)	.078 (1.98)	.023 (.58)	.050 (1.27) × .010 (.25)
UY04	UY24	.230 (5.84)	.078 (1.98)	.023 (.58)	.050 (1.27) × .010 (.25)
UY05	UY25	.380 (9.65)	.078 (1.98)	.023 (.58)	.050 (1.27) × .010 (.25)

UY21 size is available on special order only.



MODEL	L & W ±.031 (.78)	T ±.031 (.78)	B-Lead Spacing ±.031 (.78)	Lead Size ±.003 (.08)
UY62	.140 (3.55)	.062 (1.57)	.123 (3.12)	.023 (.58)
UY63	.187 (4.75)	.078 (1.98)	.175 (4.45)	.023 (.58)
UY64	.230 (5.84)	.078 (1.98)	.225 (5.72)	.023 (.58)
UY65	.380 (9.65)	.078 (1.98)	.375 (9.53)	.023 (.58)



MODEL	MAX. CAP (pF) 300 VDC	Other	L ±.015 (.38)	W (max.)	T (max.)
WY01	62	Voltages	.109 (2.77)	.115 (2.92)	.060 (1.52)
WY02	130	Available	.139 (3.53)	.140 (3.56)	.060 (1.52)
WY03	470	On	.186 (4.72)	.185 (4.70)	.080 (2.03)
WY04	680	Special	.230 (5.84)	.240 (6.10)	.080 (2.03)
WY05	2000	Order	.380 (9.65)	.420 (10.67)	.090 (2.29)

Values to 1,000pF available in 50WVDC rating.

SPECIFICATIONS

Operating Temperature Range	–55°C to +125°C
Temperature Coefficient	+90 ±20ppm/°C
Working Voltage	See Table
Dielectric Test Voltage	200% of rated working voltage
Capacitance Value	Measured at 1 MHz and 1 Vrms
Capacitance Tolerance	See Table
Quality Factor (Q)	For values 1,000pF and smaller 5,000 Min. @ 1 MHz
Dissipation Factor	For values above 1,000pF .0002 Max.
Insulation Resistance	@ 25°C : 10^6 Megohms Min. @ 125°C : 10^5 Megohms Min. or 500 ohm farads whichever is less
Marking	All capacitors are stamp marked with Co. I.D., Cap. Code and Tolerance

PART NO.	CAP. CODE	CAP. (pF)	CAP. TOLERANCE C	D	F	G	J	K	WVDC @ 125°C 200	300
	0R5	0.5								
	*1R0	1.0								
	*1R5	1.5								
	*2R2	2.2								
	2R7	2.7								
WY01 *UY01 UY21	*3R0	3.0								
	3R3	3.3								
	3R6	3.6								
	3R9	3.9								
	4R3	4.3								
	*4R7	4.7								
	*5R1	5.1								
	5R6	5.6								
	6R2	6.2								
	*6R8	6.8								
	*7R5	7.5								
	8R2	8.2								
	9R1	9.1								
	*100	10								
	110	11								
	120	12								
	130	13								
WY01 WY02 *UY01 UY02 UY21 UY22 UY62	*150	15								
	160	16								
	180	18								
	200	20								
	*220	22								
	240	24								
	270	27								
	300	30								
	330	33								
	360	36								
	390	39								
	430	43								
	470	47								
	510	51								
	560	56								
	620	62								

PART NO.	CAP. CODE	CAP. (pF)	CAP. TOLERANCE C	D	F	G	J	K	WVDC @ 125°C 200	300
	680	68								
	750	75								
	820	82								
WY02 *UY02 UY22 UY62	910	91								
	*101	100								
	111	110								
	121	120								
	131	130								
	151	150								
	161	160								
	181	180								
	201	200								
	221	220								
WY03 UY03 UY23 UY63	241	240								
	271	270								
	301	300								
	331	330								
	361	360								
	391	390								
	431	430								
	471	470								
	511	510								
	561	560								
	621	620								
WY04 UY04 UY24 UY64	681	680								
	751	750								
	821	820								
	911	910								
	102	1000								
	112	1100								
	122	1200								
	132	1300								
	152	1500								
WY05 WY05 UY25 UY65	162	1600								
	182	1800								
	202	2000								
	222	2200								
	242	2400								
	272	2700								
	302	3000								

★Available as standard through authorized Murata Erie Distributors: Under 10pF-C Tol. over 10pF-J Tol.

PART NUMBERING SYSTEM

TYPE	LEADS	TEMP. CHAR.	CAPACITANCE	TOL.	VOLTAGE
DD350	950	Y5P	103	M	50V

CAPACITOR TYPE AND SIZE

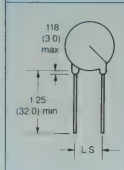
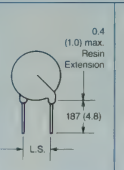
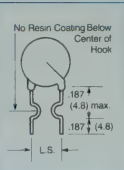
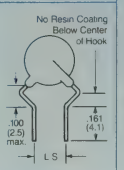
LEAD CONFIG.
See lead style chart

TEMPERATURE CHARACTERISTICS
Temperature Range
Y5=−30°C to +85°C
MAX. CAP. CHANGE OVER TEMP. RANGE
P=±10%
U=+22, −56%
V=+22, −82%

CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

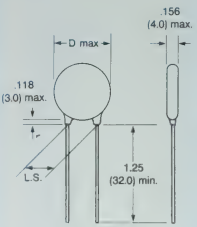
CAPACITANCE TOLERANCE
M=±20%
Z=+80, −20%

VOLTAGE
Identified by a two-digit number.

Lead Configuration*				AWG	L.S. in. (mm)	Part Number Series Availability: A=Available, P=Preferred Standard										
						DD 340	DD 304	DD 350	DD 305	DD 360	DD 306	DD 380	DD 308	DD 310	DD 312	DD 314
256 (K10)	27 (K30)			24	.100 (2.5)	A	A	A	A							
*950 (L10)	930 (L30)	63 (L40)	673 (L60)	23	.197 (5.0)	P	P	P	P	P	P	P	P	P	P	
450 (B10)	56 (B30)	71 (B40)	756 (B60)	22	.250 (6.5)	A	A	A	A	A	A	A	A	A	A	
454 (F10)	57 (F30)	72 (F40)	757 (F60)	22	.375 (9.5)									A	A	P

*( )=Old Code

CAPACITANCE (μF) BY SIZE AND T.C.



TYPE	DIMENSIONS:	12 VOLTS	16 VOLTS		25 VOLTS		50 VOLTS		
	D max. in. (mm)	Y5V	Y5P	Y5V	Y5P	Y5V	Y5P	Y5U	Y5V
*DD340	.197 (5.0)	—	—	—	.010	—	—	—	—
*DD304	.197 (5.0)	—	—	—	—	.022-.047	—	.010-.022	.022
*DD350	.236 (6.0)	—	.015	—	.015	—	.010	—	—
*DD305	.236 (6.0)	.100	—	—	—	—	—	—	.033
*DD360	.290 (7.4)	—	.022	—	.022	—	.015	—	—
*DD306	.290 (7.4)	—	—	—	—	.100	—	.047	.047
*DD380	.350 (9.0)	—	—	—	.033/.047	—	.022	—	—
*DD308	.350 (9.0)	.220	—	—	—	—	—	.100	.100
*DD310	.433 (11.0)	.330	.068	.220	.068	—	.033/.047	—	—
*DD312	.540 (13.7)	.470	.100	—	.100	—	.068	—	—
*DD314	.600 (15.2)	—	.150	—	.150	—	.100	—	—

PREFERRED VALUES (Y5P)

All preferred values are standard through authorized Murata Erie Distributors.

CAP. (μF)	TOL. (%)	PART NUMBER
25 VDC		
.01	±20	DD340950 Y5P 103M 25V
.015	±20	DD350950 Y5P 153M 25V
.022	±20	DD360950 Y5P 223M 25V
.033	±20	DD380950 Y5P 333M 25V
.047	±20	DD380950 Y5P 473M 25V

CAP. (μF)	TOL. (%)	PART NUMBER
25 VDC (Cont'd)		
.068	±20	DD310950 Y5P 683M 25V
.1	±20	DD312454 Y5P 104M 25V
.15	±20	DD314454 Y5P 154M 25V
50 VDC		
.01	±20	DD350950 Y5P 103M 50V
.015	±20	DD360450 Y5P 153M 50V

CAP. (μF)	TOL. (%)	PART NUMBER
50 VDC (Cont'd)		
.022	±20	DD380950 Y5P 223M 50V
.033	±20	DD310950 Y5P 333M 50V
.047	±20	DD310950 Y5P 473M 50V
.068	±20	DD312454 Y5P 683M 50V
.1	±20	DD314454 Y5P 104M 50V

PREFERRED VALUES (Y5V)

CAP. (μF)	TOL. (%)	PART NUMBER
12VDC		
.1	+80, −20	DD305950 Y5V 104Z 12V
.22	+80, −20	DD308950 Y5V 224Z 12V
.33	+80, −20	DD310950 Y5V 334Z 12V
.47	+80, −20	DD312454 Y5V 474Z 12V

CAP. (μF)	TOL. ()8)	PART NUMBER
16VDC		
.22	+80, −20	DD310950 Y5V 224Z 16V
25VDC		
.047	+80, −20	DD304950 Y5V 473Z 25V
.1	+80, −20	DD306950 Y5V 104Z 25V

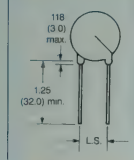
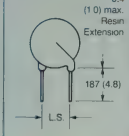
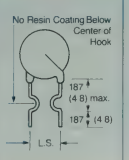
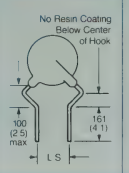
CAP. (μF)	TOL. (%)	PART NUMBER
50VDC		
.022	+80, −20	DD304950 Y5V 223Z 50V
.033	+80, −20	DD305950 Y5V 333Z 50V
.047	+80, −20	DD306950 Y5V 473Z 50V
.1	+80, −20	DD308950 Y5V 104Z 50V

NOTE: All capacitors ≤ .492 (12.0) are available on tape and reel for automatic insertion. Consult factory for specifications

★Standard Lead configurations available through authorized Murata Erie Distributors.

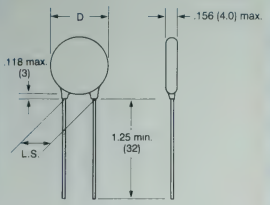
PART NUMBERING SYSTEM

TYPE DD407	LEADS 950	TEMP. CHAR. Y5S	CAPACITANCE 104	TOL. M	VOLTAGE 16V
CAPACITOR TYPE AND SIZE	**LEAD CONFIG.** See lead style chart	**TEMPERATURE CHARACTERISTICS** Temperature Range Y5=−30°C to +85°C **MAX. CAP. CHANGE OVER TEMP. RANGE** S=±22%	**CAPACITANCE VALUE** Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.	**CAPACITANCE TOLERANCE** K=±10% M=±20%	**VOLTAGE** Identified by a two-digit number.

Lead Configuration*				AWG	L.S. in. (mm)	Part Number Series Availability: A=Available, P=Preferred Standard							
						DD 404	DD 405	DD 406	DD 407	DD 408	DD 410	DD 412	DD 414
256 (K10)	27 (K30)			24	.100 (2.5)	A	A						
*950 (L10)	930 (L30)	63 (L40)	673 (L60)	23	.197 (5.0)	P	P	P	P	P	P	P	
450 (B10)	56 (B30)	71 (B40)	756 (B60)	22	.250 (6.5)	A	A	A	A	A	A	A	
454 (F10)	57 (F30)	72 (F40)	757 (F60)	22	.375 (9.5)						A	A	P

*( )=Old Code

CAPACITANCE (pF) BY SIZE



TYPE	DIMENSIONS:	Y5S		
	D max.	12V	16V	25V
*DD404	.197 (5)	—	.010.022	.001.015
*DD405	.236 (6)	—	.027.047	.018.022
*DD406	.287 (7.3)	—	.056.068	.027.033
*DD407	.315 (8)	—	.082.1	.039.047
*DD408	.354 (9.0)	—	—	.056.068
*DD410	.433 (11)	.22	.15	.082.1
*DD412	.543 (13.8)	.33	—	—
*DD414	.606 (15.4)	.47	—	—

PREFERRED VALUES

All preferred values are standard through authorized Murata Erie Distributors.

CAP. (μF)	TOL. (%)	PART NUMBER	CAP. (pF)	TOL. (%)	PART NUMBER	CAP. (μF)	TOL. (%)	PART NUMBER
.039	±20	Nonstandard	2700	±20	DD404950 Y5S 272M 25V	.018	±20	DD405950 Y5S 183M 25V
.047	±20	DD405950 Y5S 473M 16V	3300	±20	DD404950 Y5S 332M 25V	.022	±20	DD405950 Y5S 223M 25V
.056	±20	DD406950 Y5S 563M 16V	3900	±20	DD404950 Y5S 392M 25V	.027	±20	DD406950 Y5S 273M 25V
.068	±20	DD406950 Y5S 683M 16V	4700	±20	DD404950 Y5S 472M 25V	.033	±20	DD406950 Y5S 333M 25V
.082	±20	DD407950 Y5S 823M 16V	5600	±20	DD404950 Y5S 562M 25V	.039	±20	Nonstandard
.1	±20	DD407950 Y5S 104M 16V	6800	±20	DD404950 Y5S 682M 25V	.047	±20	DD407950 Y5S 473M 25V
1000pF	±20	DD404950 Y5S 102M 25V	8200	±20	DD404950 Y5S 822M 25V	.056	±20	DD408950 Y5S 563M 25V
1200	±20	DD404950 Y5S 122M 25V	.01 μF	±20	DD404950 Y5S 103M 25V	.068	±20	DD408950 Y5S 683M 25V
1500	±20	DD404950 Y5S 152M 25V	.012	±20	DD404950 Y5S 123M 25V	.082	±20	DD410950 Y5S 823M 25V
1800	±20	DD407950 Y5S 182M 25V	.015	±20	DD404950 Y5S 153M 25V	.1	±20	DD410950 Y5S 104M 25V
2200	±20	DD404950 Y5S 222M 25V						

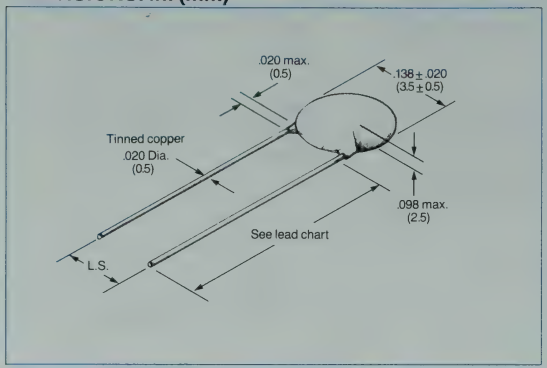
NOTE: All capacitors ≤ .492 (12.0) are available on tape and reel for automatic insertion. Consult factory for specifications.

★Standard Lead configurations available through authorized Murata Erie Distributors.

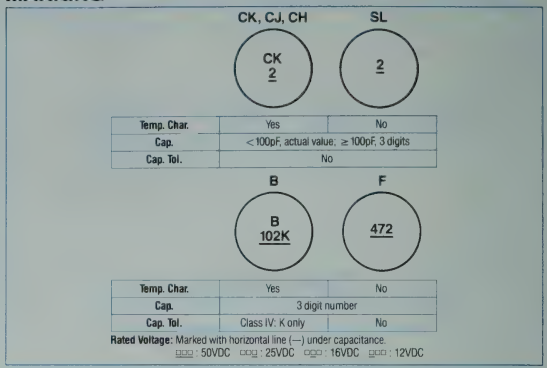
ULTRA SMALL CERAMIC DISC CAPACITORS
E.I.A. CLASS I, II, III & IV

12-50 VDC

DIMENSIONS: in. (mm)



MARKING


CK, CJ, CH
SL
CK
2
2
Temp. Char. | Yes | No
Cap. | < 100pF, actual value; ≥ 100pF, 3 digits
Cap. Tol. | No
B
F
B
102K
472
Temp. Char. | Yes | No
Cap. | 3 digit number
Cap. Tol. | Class IV: K only | No
Rated Voltage: Marked with horizontal line (—) under capacitance.
□□□ : 50VDC □□□ : 25VDC □□□ : 16VDC □□□ : 12VDC

PART NUMBERING SYSTEM

TYPE	LEADS	TEMP. CHAR.	CAPACITANCE	TOL.	VOLTAGE
DD003	-226	F	103	Z	50V

CAPACITOR TYPE AND SIZE

LEAD SPACING & SIZE
See lead style chart

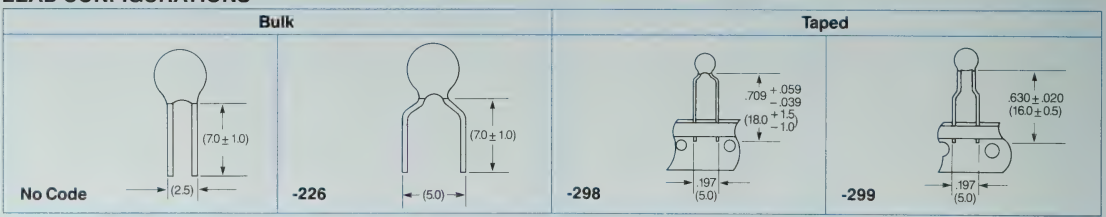
TEMPERATURE CHARACTERISTICS
Temperature Range
−25°C to +85°C
MAX. CAP. CHANGE OVER TEMP. RANGE
CK=0, ±250ppm/°C
CJ=0, ±120ppm/°C
CH=0, ±60ppm/°C
SL=+350, −1000ppm/°C
B =±10%
F =+30, −80%

CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

CAPACITANCE TOLERANCE
C =±0.25pF
D =±0.5pF
J =±5%
K =±10%
M=±20%
Z =+80, −20%

VOLTAGE
Identified by a two-digit number.

LEAD CONFIGURATIONS



CLASS I

Voltage	Capacitance (pF)			
	CK	CJ	CH	SL
50V	1-2	3	4-47	1-120

CLASS II & III

Voltage	Capacitance (pF)	
	B	F
50V	100-1500 pF	1000-4700 pF

CLASS IV

Voltage	Capacitance (pF)	
	B	F
12V	—	47000 pF
16V	8200-10000 pF	—
25V	2700-6800 pF	—
50V	1800-2200 pF	10000-22000 pF

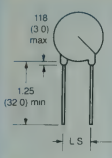
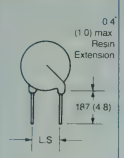
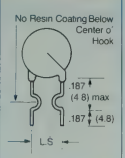
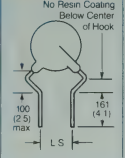
Available as standard through authorized Murata Erie Distributors.

TEMPERATURE COMPENSATING CERAMIC DISC CAPACITORS
CLASS I

PART NUMBERING SYSTEM

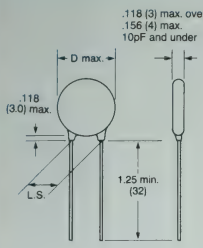
50-100 VDC

DD110	950	N150	181	J	50V
CAPACITOR TYPE AND SIZE	**LEAD CONFIG.** See lead style chart	**TEMPERATURE CHARACTERISTICS AND T.C. TOLERANCES** Per standard EIA specifications.	**CAPACITANCE VALUE** Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow. For values below 10pF, the letter "R" is used as the decimal point and the last digit becomes significant.	**CAPACITANCE TOLERANCE** C=±0.25pF for nominal cap. less than 5pF. D=±0.5pF for nominal cap. between 5 and 10pF. J=±5% for over 10pF. K=±10% for over 10pF.	**VOLTAGE** Identified by two- or three-digit number.

Lead Configuration*				AWG	L.S. in. (mm)	Part Number Series Availability: A=Available, P=Preferred Standard								
						DD 104	DD 105	DD 106	DD 107	DD 108	DD 109	DD 110	DD 111	DD 112
256 (K10)	27 (K30)			24	.100 (2.5)	A	A							
*950 (L10)	930 (L30)	63 (L40)	673 (L60)	23	.197 (5.0)	P	P	P	P	P	P	P	P	P
450 (B10)	56 (B30)	71 (B40)	756 (B60)	22	.250 (6.5)	A	A	A	A	A	A	A	A	A
454 (F10)	57 (F30)	72 (F40)	757 (F60)	22	.375 (9.5)						A	A	A	A
957 (G10)	931 (G30)	64 (G40)		23	.394 (10.0)						A	A	A	A

*( )=Old Code

CAPACITANCE (pF) BY SIZE AND T.C.



TYPE	DIMENSIONS: in. (mm) D max.	CAPACITANCE (pF) *NPO	N150	N220	N330	N470	*N750	N1500	SL**
*DD104	.157 (4)	1-22	1.5-22	1.5-27	2-27	3-33	3-47	12-68	1-82
*DD105	.197 (5)	27-39	24-36	30-43	30-47	36-56	51-75	75-120	91-130
*DD106	.236 (6)	43-62	39-56	47-62	51-68	62-82	82-110	130-160	150-200
*DD107	.295 (7.5)	68-100	62-91	68-100	75-110	91-130	120-180	180-270	220-330
*DD108	.315 (8)	110	100	110-120	120-130	150	200	300	360-390
*DD109	.374 (9.5)	120-160	110-150	130-160	150-180	160-220	220-300	330-470	430-560
*DD110	.413 (10.5)	180-200	160-180	180-200	200-220	240-270	330-360	510-560	620-680
*DD111	.433 (11)	220	200	220	240	300	390	620	750
*DD112	.492 (12.5)	240-270	220-240	240-300	270-330	330-390	430-510	680-820	820-1000

*( )=Old Code **Note: SL characteristic: P350-N1000

PREFERRED VALUES

All preferred values are standard through authorized Murata Erie Distributors.

CAP. (pF)	TOL. (%)	PART NUMBER
NPO (COG)		
1.0	±.5pF	DD104950 NPO 1R0D 100V
1.5	±.5pF	DD104950 NPO 1R5D 100V
2.2	±.5pF	DD104950 NPO 2R2D 100V
3.3	±.5pF	DD104950 NPO 3R3D 100V
4.7	±.5pF	DD104950 NPO 4R7D 100V
5.0	±.5pF	DD104950 NPO 5R0D 100V
5.6	±.5pF	DD104950 NPO 5R6D 100V
6.8	±.5pF	DD104950 NPO 6R8D 100V
8.2	±.5pF	DD104950 NPO 8R2D 100V
10	±5pF	DD104950 NPO 100D 100V
15	±5	DD104950 NPO 150J 100V
20	±5	DD104950 NPO 200J 100V
22	±5	DD104950 NPO 220J 100V
27	±5	DD105950 NPO 270J 100V
33	±5	DD105950 NPO 330J 100V
47	±5	DD106950 NPO 470J 100V
56	±5	DD106950 NPO 560J 100V
68	±5	DD107950 NPO 680J 100V
75	±5	DD107950 NPO 750J 100V
82	±5	DD107950 NPO 820J 100V

CAP. (pF)	TOL. (%)	PART NUMBER
NPO (COG)		
100	±5	DD107950 NPO 101J 100V
120	±5	DD109950 NPO 121J 100V
150	±5	DD109950 NPO 151J 100V
180	±5	DD110950 NPO 181J 100V
220	±5	DD111950 NPO 221J 100V
270	±5	DD112950 NPO 271J 100V
N750		
3.3	±.5pF	DD104950 N750 3R3D 100V
4.7	±.5pF	DD104950 N750 4R7D 100V
5.0	±.5pF	DD104950 N750 5R0D 100V
5.6	±.5pF	DD104950 N750 5R6D 100V
6.8	±.5pF	DD104950 N750 6R8D 100V
8.2	±.5pF	DD104950 N750 8R2D 100V
10	±5pF	DD104950 N750 100D 100V
15	±5	DD104950 N750 150J 100V
20	±5	DD104950 N750 200J 100V
22	±5	DD104950 N750 220J 100V
27	±5	DD104950 N750 270J 100V
33	±5	DD104950 N750 330J 100V

CAP. (pF)	TOL. (%)	PART NUMBER
N750		
47	±5	DD104950 N750 470J 100V
56	±5	DD105950 N750 560J 100V
68	±5	DD105950 N750 680J 100V
75	±5	DD105950 N750 750J 100V
82	±5	DD106950 N750 820J 100V
100	±5	DD106950 N750 101J 100V
120	±5	DD107950 N750 121J 100V
150	±5	DD107950 N750 151J 100V
180	±5	DD107950 N750 181J 100V
220	±5	DD109950 N750 221J 100V
270	±5	DD109950 N750 271J 100V
330	±5	DD110950 N750 331J 100V

NOTE: All capacitors ≤ .492 (12.0) are available on tape for automatic insertion. Consult factory for specifications.

★Standard Lead configurations available through authorized Murata Erie Distributors.

TEMPERATURE COMPENSATING CERAMIC DISC CAPACITORS
CLASS I

PART NUMBERING SYSTEM

500-1K VDC

DD07 — 450 — N150 — 470 — K — 1KV

CAPACITOR TYPE AND SIZE

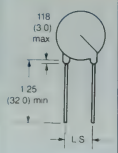
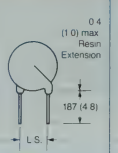
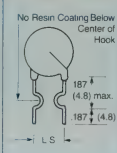
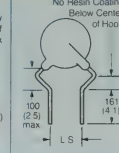
LEAD CONFIG.
See lead style chart

TEMPERATURE CHARACTERISTICS AND T.C. TOLERANCES
Per standard EIA specifications.

CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow. For values below 10pF, the letter "R" is used as the decimal point and the last digit becomes significant.

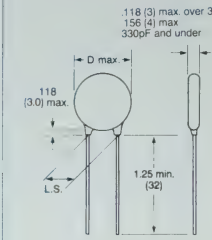
CAPACITANCE TOLERANCE
C=±0.25pF for nominal capacitance less than 5pF
D=±0.5pF for nominal capacitance between 5pF and 10pF.
Over 10pF:
J=±5%
K=±10%

VOLTAGE
Identified by three-digit number.

Lead Configuration*				AWG	L.S. in. (mm)	Part Number Series — Availability: A=Available, P=Preferred Standard									
						DD 05	DD 06	DD 07	DD 08	DD 09	DD 10	DD 11	DD 12	DD 14	DD 16
950 (L10)	930 (L30)	63 (L40)	673 (L60)	23	.197 (5.0)	A	A	A	A	A	A	A	A		
*450 (B10)	56 (B30)	71 (B40)	756 (B60)	22	.250 (6.5)	P	P	P	P	P	P	P	P		
454 (F10)	57 (F30)	72 (F40)	757 (F60)	22	.375 (9.5)					A	A	A	A	A	A
957 (G10)	931 (G30)	64 (G40)		23	.394 (10.0)					A	A	A	A	P	P

*( )=Old Code

CAPACITANCE (pF) BY SIZE AND T.C.



TYPE	DIMENSIONS: in. (mm) D max.	CAPACITANCE (pF) NPO	N150	N220	N330	N470	N750	N1500	SL**
*DD05	.197 (5)	1-22	1.5-20	1.5-24	2-24	2-27	3-39	15-56	.5-68
*DD06	.236 (6)	24-30	22-30	27-33	27-36	30-43	43-56	62-88	75-100
*DD07	.295 (7.5)	33-51	33-47	36-56	39-56	47-62	62-91	91-130	110-160
*DD08	.315 (8)	56-62	51-56	62-68	62-75	68-82	100-120	150-180	180-200
*DD09	.374 (9.5)	68-82	62-82	75-91	82-100	91-110	130-160	200-240	220-270
*DD10	.413 (10.5)	91-130	91-120	100-130	110-130	120-160	180-240	270-330	300-430
*DD11	.433 (11)	150-160	130-150	150-180	150-180	180-200	270-300	360-430	470-510
*DD12	492 (12.5)	180-200	160-200	200-220	200-240	220-270	330-390	470-560	560-620
*DD14	.571 (14.5)	220-270	220-240	240-300	270-300	300-360	430-510	620-750	—
*DD16	.649 (16.5)	—	270	330	330-390	390-470	560-620	820	—

**Note: SL characteristic: P350-N1000

PREFERRED VALUES

All preferred values are standard through authorized Murata Erie Distributors.

CAP. (pF)	TOL. (%)	PART NUMBER
NPO (COG)		
1.0	±.5pF	DD05450 NPO 1R0D 1 KV
1.5	±.5pF	DD05450 NPO 1R5D 1 KV
2.2	±.5pF	DD05450 NPO 2R2D 1 KV
3.3	±.5pF	DD05450 NPO 3R3D 1 KV
4.7	±.5pF	DD05450 NPO 4R7D 1 KV
5.0	±.5pF	DD05450 NPO 5R0D 1 KV
5.6	±.5pF	DD05450 NPO 5R6D 1 KV
6.8	±.5pF	DD05450 NPO 6R8D 1 KV
8.2	±.5pF	DD05450 NPO 8R2D 1 KV
10	±5pF	DD05450 NPO 100D 1 KV
15	±5	DD05450 NPO 150J 1 KV
20	±5	DD05450 NPO 200J 1 KV
22	±5	DD05450 NPO 220J 1 KV
27	±5	DD06450 NPO 270J 1 KV
33	±5	DD07450 NPO 330J 1 KV
47	±5	DD07450 NPO 470J 1 KV
56	±5	DD08450 NPO 560J 1 KV
68	±5	DD09450 NPO 680J 1 KV
75	±5	DD09450 NPO 750J 1 KV
82	±5	DD09450 NPO 820J 1 KV
100	±5	DD10450 NPO 101J 1 KV
120	±5	DD10450 NPO 121J 1 KV
150	±5	DD11450 NPO 151J 1 KV
180	±5	DD12450 NPO 181J 1 KV
220	±5	DD14454 NPO 221J 1 KV
270	±5	DD14454 NPO 271J 1 KV
N750		
3.3	±.5pF	DD05450 N750 3R3D 1 KV
4.7	±.5pF	DD05450 N750 4R7D 1 KV
5.0	±.5pF	DD05450 N750 5R0D 1 KV
5.6	±.5pF	DD05450 N750 5R6D 1 KV
6.8	±.5pF	DD05450 N750 6R8D 1 KV
8.2	±.5pF	DD05450 N750 8R2D 1 KV
10	±5pF	DD05450 N750 100D 1 KV
15	±5	DD05450 N750 150J 1 KV
20	±5	DD05450 N750 200J 1 KV
N750		
22	±5	DD05450 N750 220J 1 KV
27	±5	DD05450 N750 270J 1 KV
33	±5	DD05450 N750 330J 1 KV
47	±5	DD06450 N750 470J 1 KV
56	±5	DD06450 N750 560J 1 KV
68	±5	DD07450 N750 680J 1 KV
75	±5	DD07450 N750 750J 1 KV
82	±5	DD07450 N750 820J 1 KV
100	±5	DD08450 N750 101J 1 KV
120	±5	DD08450 N750 121J 1 KV
150	±5	DD09450 N750 151J 1 KV
180	±5	DD10450 N750 181J 1 KV
220	±5	DD10450 N750 221J 1 KV
270	±5	DD11450 N750 271J 1 KV
330	±5	DD12450 N750 331J 1 KV
390	±5	DD12450 N750 391J 1 KV
470	±5	DD14454 N750 471J 1 KV
560	±5	DD16454 N750 561J 1 KV
620	±5	DD16454 N750 621J 1 KV

NOTE: All capacitors ≤ .492 (12.0) are available on tape for automatic insertion. Consult factory for specifications.

★Standard Lead configurations available through authorized Murata Erie Distributors.

MEDIUM TO HIGH K CERAMIC DISC CAPACITORS CLASS II & CLASS III

PART NUMBERING SYSTEM

50-100 VDC

DD104 — **CAPACITOR TYPE AND SIZE**

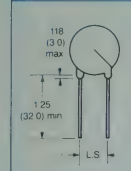
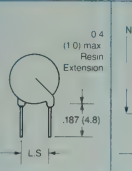
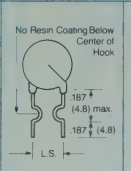
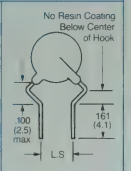
950 — **LEAD CONFIG.**
See lead style chart

Y5P — **TEMPERATURE CHARACTERISTICS**
Temperature range
X5=−55°C to +85°C
Y5=−30°C to +85°C
Z5=+10°C to +85°C
MAX. CAP. CHANGE OVER TEMP. RANGE
F=±7.5%
P=±10%
R=±15%
U=+22, −56%
V=+22, −82%

221 — **CAPACITANCE VALUE**
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

K — **CAPACITANCE TOLERANCE**
K=±10%
M=±20%
Z=+80, −20%

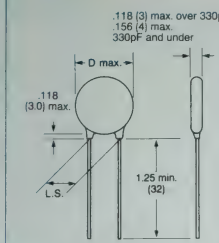
100V — **VOLTAGE**
Identified by two- or three-digit number.

Lead Configuration*				AWG	L.S. in. (mm)	Part Number Series Availability: A=Available, P=Preferred Standard									
						DD 104	DD 105	DD 106	DD 107	DD 108	DD 109	DD 110	DD 111	DD 112	DD 113
256 (K10)	27 (K30)			24	.100 (2.5)	A	A								
*950 (L10)	930 (L30)	63 (L40)	673 (L60)	23	.197 (5.0)	P	P	P	P	P	P	P	P	P	P
450 (B10)	56 (B30)	71 (B40)	756 (B60)	22	.250 (6.5)	A	A	A	A	A	A	A	A	A	A
454 (F10)	57 (F30)	72 (F40)	757 (F60)	22	.375 (9.5)						A	A	A	A	A
957 (G10)	931 (G30)	64 (G40)		23	.394 (10.0)						A	A	A	A	A

*( )=Old Code

CAPACITANCE (pF) BY SIZE AND T.C.

50-100 VDC



TYPE	DIMENSIONS: in. (mm) D max.	CAPACITANCE (pF) X5F/Y5F	X5R/Y5P	Y5U/Z5U	Y5V
*DD104	.157 (4)	100-560	100-1,000	1,000-1,500	2,200-4,700
*DD105	.197 (5)	680-1,000	1,200-1,800	2,200-3,300	6,800
*DD106	.236 (6)	1,200-1,500	2,000-2,700	—	10,000
*DD107	.295 (7.5)	1,800-2,200	3,300-3,900	4,700-6,800	20,000
*DD108	.315 (8)	2,700	4,700	—	22,000
*DD109	.374 (9.5)	3,300-3,900	5,600-6,800	10,000	33,000
*DD110	.413 (10.5)	4,700	8,200	—	—
*DD111	.433 (11)	—	—	15,000-22,000	—
*DD112	.492 (12.5)	5,600-6,800	10,000-12,000	—	—
*DD113	.532 (13.5)	8,200	15,000	—	—
STANDARD CAPACITANCE TOLERANCE		±10%(K)	±10%(K)	±20%(M)	+80, −20%(Z)

PREFERRED VALUES

All preferred values are standard through authorized Murata Erie Distributors.

CAP. (pF)	TOL. (%)	PART NUMBER
Y5P		
100	±10	DD104950 Y5P 101K 100V
120	±10	DD104950 Y5P 121K 100V
150	±10	DD104950 Y5P 151K 100V
180	±10	DD104950 Y5P 181K 100V
220	±10	DD104950 Y5P 221K 100V
270	±10	DD104950 Y5P 271K 100V
330	±10	DD104950 Y5P 331K 100V
470	±10	DD104950 Y5P 471K 100V
560	±10	DD104950 Y5P 561K 100V
680	±10	DD104950 Y5P 681K 100V
750	±10	DD104950 Y5P 751K 100V
820	±10	DD104950 Y5P 821K 100V
1000	±10	DD104950 Y5P 102K 100V
1200	±10	DD105950 Y5P 122K 100V
1500	±10	DD105950 Y5P 152K 100V
1800	±10	DD105950 Y5P 182K 100V
2000	±10	DD106950 Y5P 202K 100V
2200	±10	DD106950 Y5P 222K 100V
3300	±10	DD107950 Y5P 332K 100V
3900	±10	DD107950 Y5P 392K 100V
4700	±10	DD108950 Y5P 472K 100V
5000	±10	DD108950 Y5P 502K 100V
5600	±10	DD109950 Y5P 562K 100V
6800	±10	DD110950 Y5P 682K 100V
8200	±10	DD110950 Y5P 822K 100V
.01μF	±10	DD112454 Y5P 103K 100V
Y5U		
1000	±20	DD104950 Y5U 102M 100V
1000	+80, −20	DD104950 Y5U 102Z 100V
2000	±20	DD105950 Y5U 202M 100V
2000	+80, −20	DD105950 Y5U 202Z 100V
2200	±20	DD105950 Y5U 222M 100V
2200	+80, −20	DD105950 Y5U 222Z 100V
3300	±20	DD106950 Y5U 332M 100V
3300	+80, −20	DD106950 Y5U 332Z 100V
4700	±20	DD107950 Y5U 472M 100V
4700	+80, −20	DD107950 Y5U 472Z 100V
5000	±20	DD107950 Y5U 502M 100V
5000	+80, −20	DD107950 Y5U 502Z 100V
6800	±20	DD107950 Y5U 682M 100V
6800	+80, −20	DD107950 Y5U 682Z 100V
.01μF	±20	DD109950 Y5U 103M 100V
.01μF	+80, −20	DD109950 Y5U 103Z 100V
.02	±20	DD111950 Y5U 203M 100V
.02	+80, −20	DD111950 Y5U 203Z 100V
.022	±20	DD111950 Y5U 223M 100V
.022	+80, −20	DD111950 Y5U 223Z 100V
Y5V		
.01μF	+80, −20	DD106950 Y5V 103Z 100V
.02	+80, −20	DD107950 Y5V 203Z 100V
.022	+80, −20	DD108950 Y5V 223Z 100V
.033	+80, −20	DD109950 Y5V 333Z 100V

NOTE: All capacitors ≤ .492 (12.0) are available on tape for automatic insertion. Consult factory for specifications.

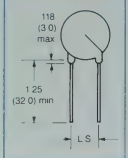
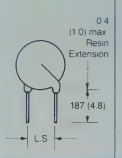
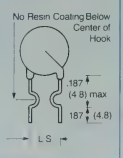
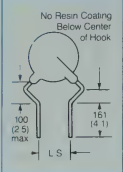
★Standard Lead configurations available through authorized Murata Erie Distributors.

MEDIUM TO HIGH K CERAMIC DISC CAPACITORS CLASS II & CLASS III

PART NUMBERING SYSTEM

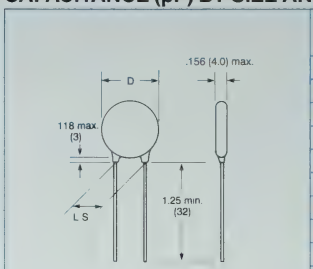
50-1K VDC

DD05	450	Y5F	101	K	1KV
CAPACITOR TYPE AND SIZE	**LEAD CONFIG.** See lead style chart	**TEMPERATURE CHARACTERISTICS** Temperature range X5=−55°C to +85°C Y5=−30°C to +85°C Z5=+10°C to +85°C **MAX. CAP. CHANGE OVER TEMP. RANGE** F=±7.5% P=±10% R=±15% U=+22, −56%	**CAPACITANCE VALUE** Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.	**CAPACITANCE TOLERANCE** K=±10% M=±20% Z=+80, −20%	**VOLTAGE** Identified by one- or three-digit number.

Lead Configuration*				AWG	L.S. in. (mm)	Part Number Series Availability: A=Available, P=Preferred Standard									
						DD 05	DD 06	DD 07	DD 08	DD 09	DD 10	DD 11	DD 12	DD 14	DD 16
950 (L10)	930 (L30)	63 (L40)	673 (L60)	23	.197 (5.0)	A	A	A	A	A	A	A	A		
*450 (B10)	56 (B30)	71 (B40)	756 (B60)	22	.250 (6.5)	P	P	P	P	P	P	P	P		
454 (F10)	57 (F30)	72 (F40)	757 (F60)	22	.375 (9.5)					A	A	A	A	A	A
957 (G10)	931 (G30)	64 (G40)		23	.394 (10.0)					A	A	A	A	P	P

*( )=Old Code

CAPACITANCE (pF) BY SIZE AND T.C.



TYPE	DIMENSIONS: in. (mm) D max.	CAPACITANCE (pF) X5F/Y5F	X5R/Y5P	Y5U/Z5U
*DD05	.197 (5)	100-330	100-560	1,000
*DD06	.236 (6)	390-470	680-820	1,500
*DD07	.295 (7.5)	560-680	1,000-1,200	2,200
*DD08	.315 (8)	820	1,500-1,800	3,300
*DD09	.374 (9.5)	1,000-1,200	2,200	4,700
*DD10	.413 (10.5)	1,500-1,800	2,700	6,800
*DD11	.433 (11)	2,200	3,300-3,900	—
*DD12	.492 (12.5)	2,700	4,700	10,000
*DD14	.571 (14.5)	3,300-3,900	5,600-6,800	—
*DD16	.649 (16.5)	4,700	8,200-10,000	20,000
STANDARD CAPACITANCE TOLERANCES:		±10%(K)	±10%(K)	+80, −20%(Z)

*( )=Old Code

PREFERRED VALUES

All preferred values are standard through authorized Murata Erie Distributors.

CAP. (pF)	TOL. (%)	PART NUMBER
X5F		
100	±10	DD05450 X5F 101K 1 KV
120	±10	DD05450 X5F 121K 1 KV
150	±10	DD05450 X5F 151K 1 KV
180	±10	DD05450 X5F 181K 1 KV
220	±10	DD05450 X5F 221K 1 KV
270	±10	DD05450 X5F 271K 1 KV
330	±10	DD05450 X5F 331K 1 KV
470	±10	DD06450 X5F 471K 1 KV
560	±10	DD07450 X5F 561K 1 KV
680	±10	DD07450 X5F 681K 1 KV
750	±10	DD08450 X5F 751K 1 KV
820	±10	DD08450 X5F 821K 1 KV
1000	±10	DD09450 X5F 102K 1 KV
1200	±10	DD09450 X5F 122K 1 KV
1500	±10	DD10450 X5F 152K 1 KV
1800	±10	DD10450 X5F 182K 1 KV
2000	±10	DD11450 X5F 202K 1 KV
2200	±10	DD11450 X5F 222K 1 KV
2700	±10	DD12450 X5F 272K 1 KV
3300	±10	DD14454 X5F 332K 1 KV
3900	±10	DD14454 X5F 392K 1 KV
4700	±10	DD16454 X5F 472K 1 KV

CAP. (pF)	TOL. (%)	PART NUMBER
Y5P		
100	±10	DD05450 Y5P 101K 1 KV
120	±10	DD05450 Y5P 121K 1 KV
150	±10	DD05450 Y5P 151K 1 KV
180	±10	DD05450 Y5P 181K 1 KV
220	±10	DD05450 Y5P 221K 1 KV
270	±10	DD05450 Y5P 271K 1 KV
330	±10	DD05450 Y5P 331K 1 KV
470	±10	DD05450 Y5P 471K 1 KV
560	±10	DD05450 Y5P 561K 1 KV
680	±10	DD06450 Y5P 681K 1 KV
750	±10	DD06450 Y5P 751K 1 KV
820	±10	DD06450 Y5P 821K 1 KV
1000	±10	DD07450 Y5P 102K 1 KV
1200	±10	DD07450 Y5P 122K 1 KV
1500	±10	DD08450 Y5P 152K 1 KV
1800	±10	DD08450 Y5P 182K 1 KV
2000	±10	DD09450 Y5P 202K 1 KV
2200	±10	DD09450 Y5P 222K 1 KV
2700	±10	DD10450 Y5P 272K 1 KV
3300	±10	DD11450 Y5P 332K 1 KV
3900	±10	DD11450 Y5P 392K 1 KV
4700	±10	DD12450 Y5P 472K 1 KV

CAP. (pF)	TOL. (%)	PART NUMBER
Y5P		
5000	±10	DD12450 Y5P 502K 1 KV
6800	±10	DD14454 Y5P 682K 1 KV
8200	±10	DD16454 Y5P 822K 1 KV
.01μF	±10	DD16454 Y5P 103K 1 KV
Y5U		
1000	±20	DD05450 Y5U 102M 1 KV
1000	+80, −20	DD05450 Y5U 102Z 1 KV
1500	±20	DD06450 Y5U 152M 1 KV
1500	+80, −20	DD06450 Y5U 152Z 1 KV
2000	±20	DD07450 Y5U 202M 1 KV
2000	+80, −20	DD07450 Y5U 202Z 1 KV
2200	±20	DD07450 Y5U 222M 1 KV
2200	+80, −20	DD07450 Y5U 222Z 1 KV
3300	±20	DD08450 Y5U 332M 1 KV
3300	+80, −20	DD08450 Y5U 332Z 1 KV
4700	±20	DD10450 Y5U 472M 1 KV
4700	+80, −20	DD10450 Y5U 472Z 1 KV
5000	±20	DD11450 Y5U 502M 1 KV
5000	+80, −20	DD11450 Y5U 502Z 1 KV
6800	±20	DD11450 Y5U 682M 1 KV
6800	+80, −20	DD11450 Y5U 682Z 1 KV
.01μF	±20	DD14454 Y5U 103M 1 KV
.01μF	+80, −20	DD14454 Y5U 103Z 1 KV

NOTE: All capacitors ≤.492 (12.0) are available on tape for automatic insertion. Consult factory for specifications.

★Standard Lead configurations available through authorized Murata Erie Distributors.

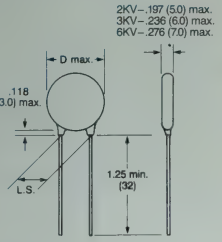
MINIATURE & CONVENTIONAL CERAMIC DISC CAPACITORS

E.I.A. CLASS I, II & III

1-6K VDC

PART NUMBERING SYSTEM

TYPE DE04	LEADS 05	TEMP. CHAR. B	CAPACITANCE 101	TOL. K	VOLTAGE 1KV
CAPACITOR TYPE AND SIZE	LEAD SPACING 05=.197 (5) *06=.25 (6.4) 07=.300 (7.5) *09=.374 (9.5) 10=.394 (10) *Non-Standard	TEMPERATURE CHARACTERISTICS Class I=Per standard EIA specifications. Class II & III= TEMPERATURE RANGE: −25°C to +85°C MAX. CAP. CHANGE OVER TEMP. RANGE: B=±10% E=+20, −55% F=+30, −80%	CAPACITANCE VALUE	CAPACITANCE TOLERANCE J=±5% K=±10% M=±20% Z=+80, −20%	VOLTAGE Identified by a one-digit number.



MINIATURE "SS" SERIES

	DIMENSIONS: in. (mm)			CAPACITANCE (pF)										
	Lead Space (Tol. ±1mm)			1KV				2KV				3KV		
TYPE	D max.	1KV/2KV	3KV	SL	B	E	F	SL	B	E	F	SL	B	E
DE04	.177 (4.5)	.197 (5)	.300 (7.5)	10-47	100-330	—	—	10-33	100-220	—	—	—	—	—
DE05	.197 (5)	.197 (5)	.300 (7.5)	56-68	470	1000	—	39	330	—	1000	10-22	100-220	—
DE06	.236 (6)	.197 (5)	.300 (7.5)	82-120	680-1000	—	2200	47-68	470	1000	—	27-39	330	—
DE07	.276 (7)	.197 (5)	.300 (7.5)	150-180	—	2200	4700	82-100	680	—	2200	47-56	470	1000
DE08	.315 (8)	.197 (5)	.300 (7.5)	220	1500	—	—	120-150	1000	2200	—	68-82	680	—
DE09	.354 (9)	.197 (5)	.300 (7.5)	270	2200	4700	—	180	1500	—	4700	100	1000	—
DE10	.394 (10)	.197 (5)	.300 (7.5)	330-390	3300	—	10000	220	2200	—	—	120	—	2200
DE11	.433 (11)	.197 (5)	.300 (7.5)	470	—	—	—	270	—	4700	—	150-180	1500	—
DE12	.472 (12)	.197 (5)	.300 (7.5)	560	4700	—	—	330	3300	—	10000	220	—	—
DE13	.512 (13)	.300 (7.5)	.300 (7.5)	—	—	10000	—	390	—	—	—	—	2200	4700
DE14	.551 (14)	.394 (10)	.394 (10)	—	—	—	—	470	—	—	—	270	—	—
DE15	.591 (15)	.394 (10)	.394 (10)	—	—	—	—	560	4700	—	—	330	3300	—
DE16	.630 (16)	.394 (10)	.394 (10)	—	—	—	—	—	—	10000	—	390	—	—
Standard Capacitance Tolerance				±5%	±10%	±20%	+80, −20%	±5%	±10%	±20%	+80, −20%	±5%	±10%	±20%

CONVENTIONAL MKV SERIES

	DIMENSIONS: in. (mm)				CAPACITANCE (pF)							
	Lead Spacing				2KV		3KV		6KV			
TYPE	D max.	1KV/2KV	3KV	6KV	N750	N1500	N750	N1500	N750	N1500	B	E
DE07	.276 (7)	.197 (5)	.300 (7.5)	.394 (10)	10-82	15-56	10-47	15-39	—	—	—	—
DE08	.315 (8)	.197 (5)	.300 (7.5)	.394 (10)	100-120	68-82	56-68	47-56	—	15-27	—	—
DE09	.354 (9)	.197 (5)	.300 (7.5)	.394 (10)	150	100	82	68	22-47	33-39	100-390	—
DE10	.394 (10)	.197 (5)	.300 (7.5)	.394 (10)	180	120	100	82	56	47-56	470-560	—
DE11	.433 (11)	.197 (5)	.300 (7.5)	.394 (10)	220	150	120	100	—	68	680	1000
DE12	.472 (12)	.197 (5)	.300 (7.5)	.394 (10)	270	180	150	120	68-82	82	820	—
DE13	.512 (13)	.300 (7.5)	.300 (7.5)	.394 (10)	—	220	180	150	100	100	1000	1500
DE14	.551 (14)	.394 (10)	.394 (10)	.394 (10)	—	270	220	180	120	—	—	—
DE15	.591 (15)	.394 (10)	.394 (10)	.394 (10)	330	—	—	220	150	120	1200	2200
DE16	.630 (16)	.394 (10)	.394 (10)	.394 (10)	390	330	270	—	—	150	1500	—
DE17	.669 (17)	.394 (10)	.394 (10)	.394 (10)	470	390	—	—	—	—	—	—
Standard Capacitance Tolerance					±10%	±10%	±10%	±10%	±10%	±10%	±10%	±20%

2, 3 and 6 KVDC PREFERRED VALUES — TEMPERATURE COMPENSATING — E.I.A. CLASS

CAP. (pF)	TOL. (%)	PART NUMBER
2KVDC N750		
10	±.5	DE0706 N750 100D 2 KV
15	±10	DE0706 N750.150K 2 KV
22	±10	DE0706 N750 220K 2 KV
27	±10	DE0706 N750 270K 2 KV
33	±10	DE0706 N750 330K 2 KV
39	±10	DE0706 N750 390K 2 KV
47	±10	DE0706 N750 470K 2 KV
56	±10	DE0706 N750 560K 2 KV
68	±10	DE0706 N750 680K 2 KV
82	±10	DE0706 N750 820K 2 KV

CAP. (pF)	TOL. (%)	PART NUMBER
3KVDC N750		
10	±10	DE0706 N750 100K 3 KV
15	±10	DE0706 N750 150K 3 KV
22	±10	DE0706 N750 220K 3 KV
27	±10	DE0706 N750 270K 3 KV
33	±10	DE0706 N750 330K 3 KV
47	±10	DE0706 N750 470K 3 KV
56	±10	DE0806 N750 560K 3 KV
68	±10	DE0806 N750 680K 3 KV
82	±10	DE0906 N750 820K 3 KV

CAP. (pF)	TOL. (%)	PART NUMBER
6KVDC N750		
22	±10	DE0909 N750 220K 6 KV
27	±10	DE0909 N750 270K 6 KV
33	±10	DE0909 N750 330K 6 KV
47	±10	DE0909 N750 470K 6 KV
56	±10	DE1009 N750 560K 6 KV
68	±10	DE1209 N750 680K 6 KV
82	±10	DE1209 N750 820K 6 KV

2, 3 and 6 KVDC PREFERRED VALUES — HIGH K — E.I.A. CLASS II & III

CAP. (pF)	TOL. (%)	PART NUMBER
2KVDC B		
100	±10	DE0706 B 101K 2 KV
150	±10	DE0706 B 151K 2 KV
220	±10	DE0706 B 221K 2 KV
330	±10	DE0706 B 331K 2 KV
470	±10	DE0706 B 471K 2 KV
560	±10	DE0706 B 561K 2 KV
680	±10	DE0706 B 681K 2 KV
820	±10	DE0806 B 821K 2 KV
2KVDC E		
1000	±20	DE0806 E 102M 2 KV
1500	±20	DE0906 E 152M 2 KV
2200	±20	DE1106 E 222M 2 KV
3300	±20	DE1206 E 332M 2 KV
4700	±20	DE1509 E 472M 2 KV
6800	±20	DE1609 E 682M 2 KV
.01μF	±20	DE1809 E 103M 2 KV

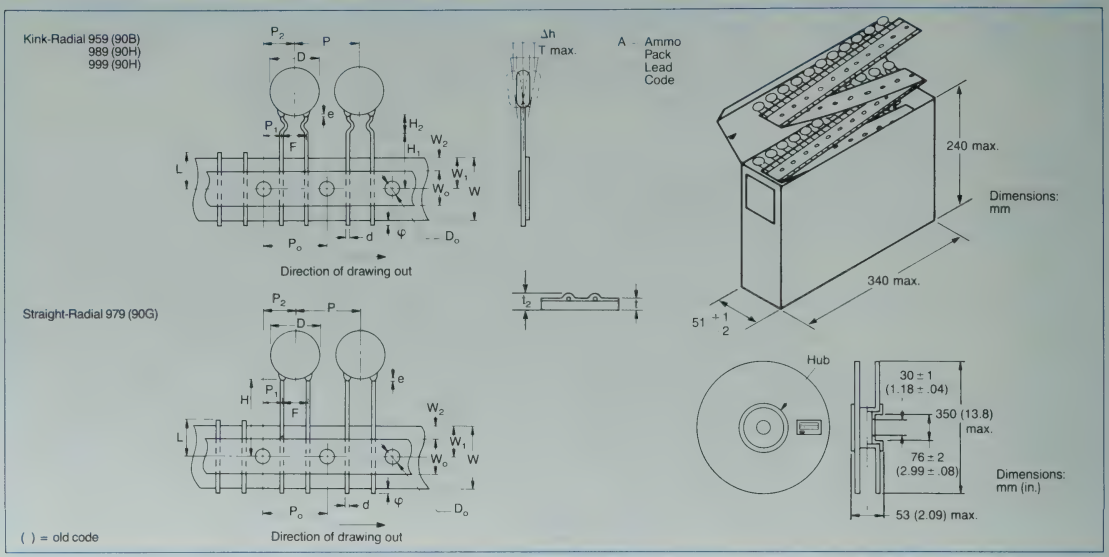
CAP. (pF)	TOL. (%)	PART NUMBER
3KVDC B		
100	±10	DE0706 B 101K 3 KV
150	±10	DE0706 B 151K 3 KV
220	±10	DE0706 B 221K 3 KV
330	±10	DE0706 B 331K 3 KV
470	±10	DE0806 B 471K 3 KV
560	±10	DE0806 B 561K 3 KV
680	±10	DE0906 B 681K 3 KV
820	±10	DE1006 B 821K 3 KV
3KVDC E		
1000	±20	DE0906 E 102M 3 KV
1500	±20	DE1006 E 152M 3 KV
2200	±20	DE1206 E 222M 3 KV
3300	±20	DE1409 E 332M 3 KV
4700	±20	DE1609 E 472M 3 KV

CAP. (pF)	TOL. (%)	PART NUMBER
6KVDC B		
100	±10	DE0909 B 101K 6 KV
150	±10	DE0909 B 151K 6 KV
220	±10	DE0909 B 221K 6 KV
330	±10	DE0909 B 331K 6 KV
470	±10	DE1009 B 471K 6 KV
560	±10	DE1009 B 561K 6 KV
680	±10	DE1109 B 681K 6 KV
820	±10	DE1209 B 821K 6 KV
6KVDC E		
1000	±20	DE1109 E 102M 6 KV
1500	±20	DE1309 E 152M 6 KV
2200	±20	DE1509 E 222M 6 KV

All preferred values are standard through authorized Murata Erie Distributors.

TAPED PACKAGING
CERAMIC DISC CAPACITORS

Most Murata Erie disc capacitors are available in tape packaging for automatic insertion equipment. Shown on this page are some typical specifications for taped capacitors for general application. The configurations available meet the specifications of Universal, Panasert® and Avisert® as well as other automatic insertion equipment. Our applications engineers will be happy to work with you to meet your specific requirements.



DIMENSIONS: mm

ITEM		CODE	DIMENSIONS	REMARKS
Taping Pitch		P	12.7	
Guide Pitch		P_0	12.7 ± 0.2	
Lead Spacing		F	5.2 ± 0.4	
Feed Hole Position		P_2	6.35 ± 1.3	
Feed Hole Position		P_1	3.85 ± 0.7	
Diameter of Disc		D	See table	
Width of Base Tape		W	18.0 ± 0.5	
Half of Base Tape Width		W_1	$9.0^{+0}_{-0.5}$	
Lead Length	For Straight Lead Type	H	$20.0^{+1.5}_{-1.0}$	For taping code 979
	For Kink Lead Type	H_1	16.0 ± 0.5	For taping code 959, 989, 999
		H_2	4.8 max.	*1 For taping code-959
			6.0 max.	*2 For taping code-989
			5.0 max.	*3 For taping code-999
Protruding Length		φ	−1.0 to 3.0	
Diameter of Lead		d	$0.6^{+0.06}_{-0.05}$	
Total Thickness of Tape		t	$t_1 = 0.6 \pm 3$, $t_2 = 1.5$ max.	
Thickness of Capacitor Body		T	See table	
Deviation Across Tape		Δh	0 ± 1.0	
Cutting Position of Failure		L	$11.0^{+0}_{-1.0}$	
Width of Adhesive Tape		W_0	11.5 and over	
Margin Between Both Tapes		W_2	5.0 min.	
Parts length		e	Up to the center of kink	For taping code 959, 989, 999
			1.0 mm max.	For taping code 979
Diameter of Feed Hole		D_0	4.0 ± 0.1	

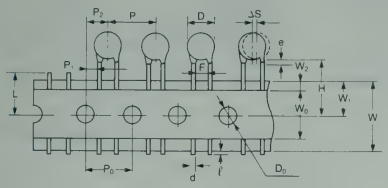
Disc Capacitor nominal body diameter		Rectangular Capacitor nominal body height	Min. Quantity (pcs.)
Class I, II 50VDC	Class I, II 500VDC & Class III		
Up to *9.5mm	Up to 9.0mm	Up to 7.0mm	2,500 Reel 2,000 Ammo
*9.6mm 12.0mm included	9.1mm 12.0mm included	7.1mm 10.0mm included	2,000 Reel and Ammo

*1. Applied to DD107-112
DD07-12
DD360-DD310
DD306-DD310
DD406-DD410

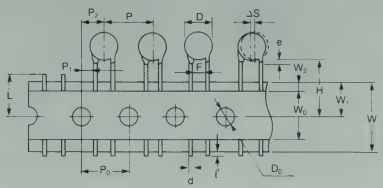
*2. Applied to DD104 & DD105
DD05
DD340
DD304
DD404

*3. Applied to DD106
DD06
DD350
DD305
DD405

For MKV up to 2KV DC, ≤ 11 mm Dia.
- 12.7mm pitch/lead spacing 5mm
(Lead Code: –979)

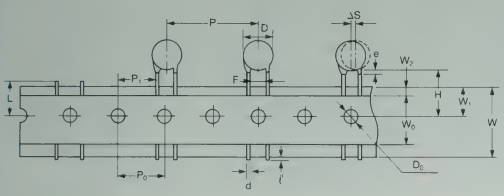


For UP to 13 mm Dia.
- 15mm pitch/lead spacing 7.5mm
(Lead Code: – 486)

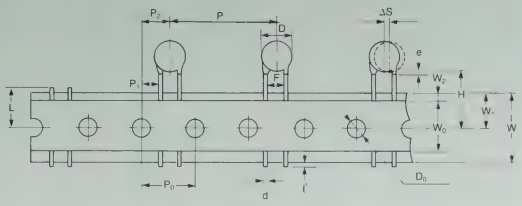


A= Ammo Pack Lead Code

For MKV ≥ 3KV & Safety Caps
- 30mm pitch/lead spacing 7.5mm
(Lead Code: – 477)



For 10mm Lead Spacing
- 25.4mm pitch/lead spacing 10.0mm
(Lead Code: – 487)



DIMENSIONS: mm

ITEM	CODE	-979	-486	-487	-477
Pitch of component	P	12.7	15.0	25.4	30.0
Pitch of sprocket hole	P_0	12.7 ± 0.3	15.0 ± 0.3	12.7 ± 0.3	15.0 ± 0.3
Lead spacing	F	$5.0^{+0.8}_{-0.2}$	7.5 ± 1.0	10.0 ± 1.0	7.5 ± 1.0
Length from hole center to component center	P_2	6.35 ± 1.3	7.5 ± 1.5	—	7.5 ± 1.5
Length from hole center to lead	P_1	3.85 ± 0.7	3.75 ± 1.0	7.7 ± 1.5	3.75 ± 1.0
Body diameter	D	See individual product specifications			
Deviation along tape, left or right	ΔS	0 ± 1.0	0 ± 2.0		
Carrier tape width	W	18.0 ± 0.5			
Position of sprocket hole	W_1	9.0 ± 0.5			
Lead distance between reference and bottom planes	H	$20.0^{+1.5}_{-1.0}$		$18.0^{+2.0}_{-0}$	$20.0^{+1.5}_{-1.0}$
Protusion length	ℓ	+0.5 / –1.0			
Diameter of sprocket hole	D_0	4.0 ± 0.1			
Lead Diameter	d	$.6 \pm 0.05$	$.65 \pm 0.05$		
Total tape thickness	t_1	0.6 ± 0.3			
Total thickness, tape and lead wire	t_2	1.5 max.			
Portion to cut in case of defect	L	$11.0^{+0}_{-1.0}$			
Hold down tape width	W_0	11.5 min.			
Hold down tape position	W_2	1.5 ± 1.5			
Coating extension on lead	e	3.0 max.			

HR SERIES, HIGH TEMPERATURE (+125°)/ LOW LOSS .3% DISSIPATION FACTOR
CERAMIC DISC CAPACITORS E.I.A. CLASS I, II & III

250-6K VDC

PART NUMBERING SYSTEM

TYPE
DE07

CAPACITOR TYPE AND SIZE

LEADS
05

LEAD SPACING
5, 05=.197 (5)
7, 07=.300 (7.5)
0, 10=.394 (10)

TEMP. CHAR.
R

TEMPERATURE CHARACTERISTICS
−25°C to +125°C
MAX. CAP. CHANGE OVER TEMP. RANGE
SL=+350-1000 ppm/°C

	−25°C to +85°C	+85°C to +125°C
R=	±15%	+15, −30%
C=	±20%	+15, −30%

CAPACITANCE
221

CAPACITANCE VALUE
Expressed in picofarads and identified by a three--digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

TOL.
K

CAPACITANCE TOLERANCE
J =±5% (Class I only)
K =±10% (Class I.II only)
M=±20%
Z =+80, −20%

VOLTAGE
1KV

VOLTAGE
Identified by a one, two or three digit number.

PREFERRED VALUES 1KV-6KV

	DIMENSIONS: in. (mm)				CAPACITANCE (pF)								
	Lead Space (Tol. ±1mm)				250V	500V	1KV		2KV		3KV		6KV
TYPE	D max.	250V500V/1KV	2KV/3KV	6KV	R	C	SL	R	SL	R	SL	R	R
DE50-6	.236 (6)	.197 (5)	.300 (7.5)	.394 (10)	220-1000	330-470	—	—	—	—	—	—	
DE507	.276 (7)	.197 (5)	.300 (7.5)	.394 (10)	—	—	10-120	—	10-82	—	10-47	—	
DE50-7	.276 (7)	.197 (5)	.300 (7.5)	.394 (10)	1500	680	—	—	—	—	—	—	
DE07	.276 (7)	.197 (5)	.300 (7.5)	.394 (10)	—	—	—	220-470	—	220-270	—	150-270	
DE508	.315 (8)	.197 (5)	.300 (7.5)	.394 (10)	—	—	150-180	—	100-120	—	56-68	—	
DE50-8	.315 (8)	.197 (5)	.300 (7.5)	.394 (10)	2200	1000	—	—	—	—	—	—	
DE08	.315 (8)	.197 (5)	.300 (7.5)	.394 (10)	—	—	—	680	—	330-390	—	330	
DE509	.354 (9)	.197 (5)	.300 (7.5)	.394 (10)	—	—	220	—	150	—	82	—	
DE50-9	.354 (9)	.197 (5)	.300 (7.5)	.394 (10)	3300	1500	—	—	—	—	—	—	
DE09	.354 (9)	.197 (5)	.300 (7.5)	.394 (10)	—	—	—	1000	—	470-560	—	390	220
DE510	.394 (10)	.197 (5)	.300 (7.5)	.394 (10)	—		270	—	180	—	100	—	
DE51-0	.394 (10)	.197 (5)	.300 (7.5)	.394 (10)	4700	2200	—	—	—	—	—	—	
DE10	.394 (10)	.197 (5)	.300 (7.5)	.394 (10)	—	—	—	—	—	680	—	470-560	330
DE511	.433 (11)	.197 (5)	.300 (7.5)	.394 (10)	—	—	330	—	220	—	120	—	
DE11	.433 (11)	.197 (5)	.300 (7.5)	.394 (10)	—	—	—	1500	—	820	—	680	
DE51-2	.472 (12)	.197 (5)	.300 (7.5)	.394 (10)	6800-10000	3300	—	—	—	—	—	—	
DE12	.472 (12)	.197 (5)	.300 (7.5)	.394 (10)	—	—	—	—	—	1000-1500	—	820	470
DE13	.512 (13)	.394 (10)	.300 (7.5)	.394 (10)	—	—	—	2200	—	—	—	1000	680
DE51-4	.551 (14)	.394 (10)	.300 (7.5)	.394 (10)	—	4700	—	—	—	—	—	—	
DE14	.551 (14)	.394 (10)	.394 (10)	.394 (10)	—	—	—	—	—	1800	—	1200	
DE15	.591 (15)	.394 (10)	.394 (10)	.394 (10)	—	—	—	3300	—	2200	—	1500	
DE16	.630 (16)	.394 (10)	.394 (10)	.394 (10)	—	—	—	—	—	—	—	1800	
DE17	.669 (17)	.394 (10)	.394 (10)	.394 (10)	—	—	—	4700	—	2700	—	2200	1000
DE19	.748 (19)	.394 (10)	.394 (10)	.394 (10)	—		—	—	—	3300	—	2700	1500
DE20	.787 (20)	.394 (10)	.394 (10)	.394 (10)	—		—	—	—	3900	—	—	
DE21	.827 (21)	.394 (10)	.394 (10)	.394 (10)	—		—	—	—	4700	—	—	2200

All preferred values are standard through authorized Murata Erie Distributors.

SAFETY RECOGNIZED CERAMIC DISC CAPACITORS

PART NUMBERING SYSTEM

DE7150 FZ 103 P VA1 KC/MY

CAPACITOR TYPE AND SIZE

TEMPERATURE CHARACTERISTICS
Temperature Range
B =−25°C to +85°C
F =−25°C to +85°C
FZ=−10°C to +60°C
MAX. CAP. CHANGE OVER TEMP. RANGE
B =±10%
F =+30%, −80%
FZ=+30%, −85%

CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

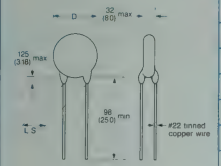
CAPACITANCE TOLERANCE
K =±10%
M=±20%
P =+100%, −0%

VOLTAGE
VA1= 400 VAC : Europe
250 VAC : (VDE565-1/UL1414)
125 VAC : North America
AC125= 125 VAC : North America Only

LISTED TYPE DESIGNATION

*B, F, FZ are JIS TC codes that are similar to EIA Temperature Characteristics Y5P, Y5V, Z5V.

SPECIFICATIONS



PART NUMBER	DIMENSIONS: in. (mm)		CAPACITANCE (pF) by Value		
	D max.	L.S.	B	F	FZ
DE7090 B 101K VA1-KC	.394 (10)	.300 (7.5)	100	—	—
DE7090 B 151K VA1-KC	.394 (10)	.300 (7.5)	150	—	—
DE7090 B 221K VA1-KC	.394 (10)	.300 (7.5)	220	—	—
DE7090 B 331K VA1-KC	.394 (10)	.300 (7.5)	330	—	—
DE7090 B 471K VA1-KC	.394 (10)	.300 (7.5)	470	—	-
DE7090 B 681K AC125-MY	.394 (10)	.300 (7.5)	680	—	—
DE7090 B 102K VA1-KC	.394 (10)	.300 (7.5)	1,000	—	—
DE7100 F 222M VA1-KC	.472 (12)	.300 (7.5)	—	2,200	—
DE7100 FZ 472P VA1-KC	.472 (12)	.300 (7.5)	—	—	4,700
DE7120 F 332M VA1-KC	.551 (14)	.374 (9.5)	—	3,300	—
DE7150 F 472M VA1-KC	.669 (17)	.374 (9.5)	—	4,700	—
DE7150 FZ 103P VA1-KC	.669 (17)	.374 (9.5)	—	—	10,000
DE7150 F 103M VA1-KC	.669 (17)	.374 (9.5)	—	10,000	—

TYPE KC

	Recognized Standard No.																
	VIDE0560-3 BS415 AS3250	VDE0565-1 — —		SEV1055/SEV1016				SEMKO101/ SS443 04-14		UL 1414	EI E101-82	EI E384/14-82	NEMKO NEMX0661/77 NEMX0132/85		DEMKO Section 201		DEMKO Section 21	CSA C22.2 No. 0 No. 1
Part Number	—	X	Y	X	Y	X	Y	X	Y	—	Y	X, Y	X	Y	X	Y	X, Y	—
DE7090 B 101K VA1-KC	○	○	○	○	○	—	○	○	○	○	○	○	○	○	○	○	—	○
DE7090 B 151K VA1-KC	○	○	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○
DE7090 B 221K VA1-KC	○	○	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○
DE7090 B 331K VA1-KC	○	○	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○
DE7090 B 471K VA-1KC	○	○	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○
DE7090 B 102K VA1-KC	○	○	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○
DE7090 F 152M VA1-KC	○	○	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○
DE7100 F 222M VA1-KC	○	○	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○
DE7120 F 332M VA1-KC	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○
DE7120 F 392M VA1-KC	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○
DE7150 F 472M VA1-KC	○	○	○	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○
DE7100 F 472M VA1-KC	○	○	—	—	—	○	○	○	○	○	○	○	○	○	○	○	○	○
DE7150 F 103M VA1-KC	○	○	—	○	○	—	—	○	—	○	○	—	○	—	○	—	—	○
DE7100 FZ 472P VA1-KC	○	—	—	—	—	—	—	○	○	○	○	○	○	○	○	○	○	○
DE7150 FZ 103P VA1-KC	○	—	—	—	—	—	—	○	—	○	○	—	○	—	○	—	—	○
AC Rated Voltage	400	250		400		250		400/250		125/250	400	250	250		400		250	125

Approval Type	Standard No.	File No.	Rated Voltage
UL	1414	E37921	125/250VAC
CSA	C22-2 No. 1	LR 36214	125VAC
VDE	560-2	19764, 5, 6	400VAC
SEMKO	101	61-88833	400VAC
BS	415	226052	400VAC
SEV	1016	J 1.21/443	400VAC
VDE	565-1	35029, 35030	250VAC
SAA	AS3159	CS2018N	400VAC

All safety recognized capacitors are standard through authorized Murata Erie Distributors.

TYPICAL MARKING

1. Capacitance by three-digit code
2. Cap. tolerance by E.I.A. lettercode
3. Safety recognition markings
4. Type Designation
5. Manufacturer's trademark

HIGH VOLTAGE
CERAMIC DISC CAPACITORS
CLASS I, CLASS II & CLASS III

PART NUMBERING SYSTEM

N4700

DHR19 — CAPACITOR TYPE AND SIZE

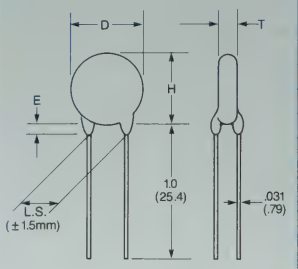
N4700 — TEMPERATURE CHARACTERISTICS AND T.C. TOLERANCE
Per standard EIA specifications.

102 — CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

M — CAPACITANCE TOLERANCE
M = ±20%

10KV — VOLTAGE
Identified by a two-digit number.

10 & 15 KVDC PREFERRED VALUES



PART NUMBER	CAPACITANCE (pF)	WORKING VOLTAGE (KVDC)	DIMENSIONS: in. (mm) D max.	H max.	T max.	L.S.	E max.
DHR12 N4700 221M 10KV	220	10	.472 (12)	.512 (13)	.275 (7)	.375 (9.5)	.197 (5)
DHR15 N4700 331M 10KV	330	10	.590 (15)	.630 (16)	.275 (7)	.375 (9.5)	.197 (5)
DHR15 N4700 471M 10KV	470	10	.590 (15)	.630 (16)	.275 (7)	.375 (9.5)	.197 (5)
DHR17 N4700 681M 10KV	680	10	.669 (17)	.700 (17.8)	.275 (7)	.375 (9.5)	.197 (5)
DHR19 N4700 102M 10KV	1,000	10	.748 (19)	.791 (20.1)	.275 (7)	.500 (12.7)	.197 (5)
DHR9 N4700 820M 15KV	82	15	.354 (9)	.394 (10)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR9 N4700 101M 15KV	100	15	.354 (9)	.394 (10)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR12 N4700 151M 15KV	150	15	.472 (12)	.512 (13)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR12 N4700 221M 15KV	220	15	.472 (12)	.512 (13)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR15 N4700 331M 15KV	330	15	.590 (15)	.630 (16)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR17 N4700 471M 15KV	470	15	.669 (17)	.697 (17.7)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR19 N4700 681M 15KV	680	15	.748 (19)	.787 (20)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR22 N4700 102M 15KV	1,000	15	.866 (22)	.909 (23.1)	.330 (8.4)	.500 (12.7)	.197 (5)

PART NUMBERING SYSTEM

E.I.A. CLASS II & III

DHR17 — CAPACITOR TYPE AND SIZE

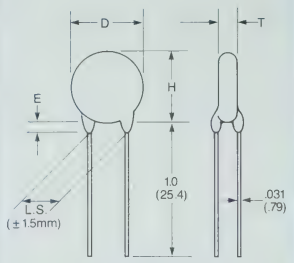
Y5P — TEMPERATURE CHARACTERISTICS
Temperature Range
Y5 = -30°C to +85°C; Z5 = +10°C to +85°C
MAX. CAP. CHANGE OVER TEMP. RANGE
P = ±10%; U = +22, -56%

102 — CAPACITANCE VALUE
Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

M — CAPACITANCE TOLERANCE
M = ±20%
Z = +80%, -20%

10KV — VOLTAGE
Identified by a two-digit number.

7.5, 10 & 15 KVDC PREFERRED VALUES



PART NUMBER	CAPACITANCE (pF)	WORKING VOLTAGE (KVDC)	DIMENSIONS: in. (mm) D max.	H max.	T	L.S.	E max.
DHR9 Y5P 101M 7.5KV	100	7.5	.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Y5P 151M 7.5KV	150		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Y5P 221M 7.5KV	220		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.157 (4)
DHR10 Y5P 331M 7.5KV	330		.394 (10)	.433 (11)	.275 (7)	.375 (9.5)	.157 (4)
DHR12 Y5P 471M 7.5KV	470		.472 (12)	.512 (13)	.275 (7)	.375 (9.5)	.157 (4)
DHR13 Y5P 681M 7.5KV	680		.512 (13)	.551 (14)	.275 (7)	.375 (9.5)	.157 (4)
DHR15 Y5P 102M 7.5KV	1,000		.590 (15)	.631 (16)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Z5U 471Z 7.5KV	470		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.157 (4)
DHR10 Z5U 681Z 7.5KV	680		.394 (10)	.433 (11)	.275 (7)	.375 (9.5)	.157 (4)
DHR11 Z5U 102Z 7.5KV	1,000		.433 (11)	.472 (12)	.275 (7)	.375 (9.5)	.157 (4)
DHR13 Z5U 152Z 7.5KV	1,500		.512 (13)	.551 (14)	.275 (7)	.375 (9.5)	.157 (4)
DHR15 Z5U 222Z 7.5KV	2,200		.590 (15)	.631 (16)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Y5P 151M 10KV	150	10	.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.197 (5)
DHR9 Y5P 221M 10KV	220		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.197 (5)
DHR12 Y5P 331M 10KV	330		.472 (12)	.512 (13)	.275 (7)	.375 (9.5)	.197 (5)
DHR15 Y5P 471M 10KV	470		.590 (15)	.630 (16)	.275 (7)	.375 (9.5)	.197 (5)
DHR15 Y5P 681M 10KV	680		.590 (15)	.630 (16)	.275 (7)	.375 (9.5)	.197 (5)
DHR17 Y5P 102M 10KV	1,000		.669 (17)	.700 (17.8)	.275 (7)	.500 (12.7)	.197 (5)
DHR24 Y5P 2^2M 10KV	2,000		.945 (24)	.964 (25)	.275 (7)	.622 (15.8)	.197 (5)
DHR9 Y5P 101M 15KV	100	15	.354 (9)	.394 (10)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR9 Y5P 151M 15KV	150		.354 (9)	.394 (10)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR12 Y5P 221M 15KV	220		.472 (12)	.512 (13)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR12 Y5P 331M 15KV	330		.472 (12)	.512 (13)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR15 Y5P 471M 15KV	470		.590 (15)	.630 (16)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR17 Y5P 681M 15KV	680		.669 (17)	.700 (17.8)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR20 Y5P 102M 15KV	1,000		.787 (20)	.830 (21.1)	.330 (8.4)	.500 (12.7)	.197 (5)

All preferred values are standard through authorized Murata Erie Distributors.

HIGH VOLTAGE CERAMIC CAPACITORS CLASS I & CLASS III

PART NUMBERING SYSTEM

DHS20 N4700 561 M 10KV

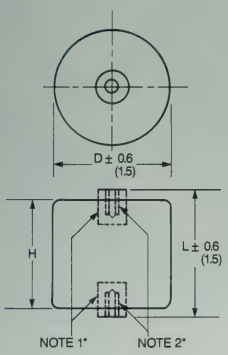
CAPACITOR TYPE AND SIZE

TEMPERATURE CHARACTERISTICS AND T.C. TOLERANCE
Per standard EIA specifications.

CAPACITANCE VALUE
Expresed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

CAPACITANCE TOLERANCE
M=±20%

VOLTAGE
Identified by a two-digit number in KVDC.



NOTE 1:
This terminal may extend up to 0.100 (2.5) above insulated surface.

NOTE 2:
No. 8-32 NC-28 Tapped holes.

Working Voltage < KVDC >	Depth < Inch (mm) >
10, 15	0.16 (4)
20, 30	0.24 (6)
40	0.31 (8)

PART NUMBERING SYSTEM

DHS20 Z5V 681 Z 10KV

CAPACITOR TYPE AND SIZE

TEMPERATURE CHARACTERISTICS
Temperature Range
Z5=+10°C to +85°C
MAX. CAP. CHANGE OVER TEMP. RANGE
V=+22%, −82%

CAPACITANCE VALUE
Expresed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.

CAPACITANCE TOLERANCE
Z=+80%, −20%

VOLTAGE
Identified by a two-digit number in KVDC.

CLASS I

10 TO 40 KV DC

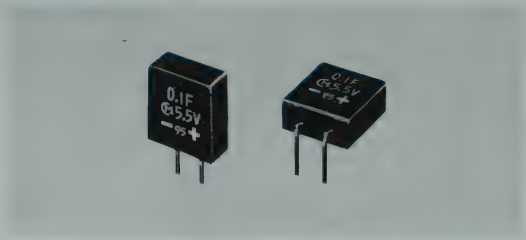
PART NUMBER	CAPACITANCE (pF)	WORKING VOLTAGE KVDC	WORKING VOLTAGE KVAC (60Hz)	TEST VOLTAGE (KVDC)	DIMENSIONS: in. (mm) D	L	H
DHS20 N4700 561M-10KV	560	10	4	15	.787 (20)	.63 (16)	.47 (12)
DHS30 N4700 122M-10KV	1,200				1.18 (30)		
DHS30 N4700 182M-10KV	1,800				1.18 (30)		
DHS38 N4700 282M-10KV	2,800				1.49 (38)		
DHS52 N4700 502M-10KV	5,000				2.04 (52)		
DHS60 N4700 802M-10KV	8,000				2.36 (60)		
DHS20 N4700 371M-15KV	370	15	6	23	.787 (20)	.71 (18)	.55 (14)
DHS30 N4700 801M-15KV	800				1.18 (30)		
DHS30 N4700 112M-15KV	1,100				1.18 (30)		
DHS38 N4700 192M-15KV	1,900				1.49 (38)		
DHS52 N4700 342M-15KV	3,400				2.04 (52)		
DHS60 N4700 532M-15KV	5,300				2.36 (60)		
DHS20 N4700 281M-20KV	280	20	8	30	.787 (20)	.95 (24)	.787 (20)
DHS30 N4700 601M-20KV	600				1.18 (30)		
DHS30 N4700 881M-20KV	880				1.18 (30)		
DHS38 N4700 142M-20KV	1,400				1.49 (38)		
DHS52 N4700 252M-20KV	2,500				2.04 (52)		
DHS60 N4700 402M-20KV	4,000				2.36 (60)		
DHS20 N4700 191M-30KV	190	30	12	45	.787 (20)	1.10 (28)	.95 (24)
DHS30 N4700 401M-30KV	400				1.18 (30)		
DHS30 N4700 591M-30KV	590				1.18 (30)		
DHS38 N4700 941M-30KV	940				1.49 (38)		
DHS52 N4700 172M-30KV	1,700				2.04 (52)		
DHS60 N4700 272M-30KV	2,700				2.36 (60)		
DHS20 N4700 141M-40KV	140	40	16	60	.787 (20)	1.42 (36)	1.26 (32)
DHS30 N4700 301M-40KV	300				1.18 (30)		
DHS30 N4700 441M-40KV	440				1.18 (30)		
DHS38 N4700 701M-40KV	700				1.49 (38)		
DHS52 N4700 132M-40KV	1,300				2.04 (52)		
DHS60 N4700 202M-40KV	2,000				2.36 (60)		

CLASS III

PART NUMBER	CAPACITANCE (pF)	WORKING VOLTAGE KVDC	TEST VOLTAGE KVDC	DIMENSIONS: in. (mm) D max.	L	H
DHS20 Z5V 681Z-10KV	680	10	15	.787 (20)	.75 (19)	.66 (17)
DHS24 Z5V 122Z-10KV	1,200			.94 (24)	.74 (19)	.66 (17)
DHS30 Z5V 202Z-10KV	2,000			1.18 (30)	.75 (19)	.66 (17)
DHS38 Z5V 322Z-10KV	3,200			1.49 (38)	.74 (19)	.66 (17)
DHS43 Z5V 472Z-10KV	4,700			1.69 (43)	.75 (19)	.66 (17)
DHS52 Z5V 652Z-10KV	6,500			2.04 (52)	.74 (19)	.66 (17)
DHS57 Z5V 832Z-10KV	8,300			2.24 (57)	.75 (19)	.66 (17)
DHS60 Z5V 932Z-10KV	9,300			2.36 (60)	.74 (19)	.66 (17)
DHS20 Z5V 471Z-15KV	470	15	23	.787 (20)	.90 (23)	.82 (21)
DHS24 Z5V 801Z-15KV	800			.94 (24)	.90 (23)	.82 (21)
DHS30 Z5V 132Z-15KV	1,300			1.18 (30)	.90 (23)	.82 (21)
DHS38 Z5V 222Z-15KV	2,200			1.49 (38)	.90 (23)	.82 (21)
DHS43 Z5V 322Z-15KV	3,200			1.69 (43)	.90 (23)	.82 (21)
DHS52 Z5V 462Z-15KV	4,600			2.04 (52)	.90 (23)	.82 (21)
DHS57 Z5V 582Z-15KV	5,800			2.24 (57)	.90 (23)	.82 (21)
DHS60 Z5V 652Z-15KV	6,500			2.36 (60)	.90 (23)	.82 (21)
DHS20 Z5V 351Z-20KV	350	20	30	.787 (20)	1.02 (26)	.94 (24)
DHS24 Z5V 601Z-20KV	600			.94 (24)	1.02 (26)	.94 (24)
DHS30 Z5V 102Z-20KV	1,000			1.18 (30)	1.02 (26)	.94 (24)
DHS38 Z5V 162Z-20KV	1,600			1.49 (38)	1.02 (26)	.94 (24)
DHS43 Z5V 242Z-20KV	2,400			1.69 (43)	1.02 (26)	.94 (24)
DHS52 Z5V 332Z-20KV	3,300			2.04 (52)	1.02 (26)	.94 (24)
DHS57 Z5V 432Z-20KV	4,300			2.24 (57)	1.02 (26)	.94 (24)
DHS60 Z5V 482Z-20KV	4,800			2.36 (60)	1.02 (26)	.94 (24)
DHS20 Z5V 261Z-30KV	260	30	45	.787 (20)	1.33 (34)	1.25 (32)
DHS24 Z5V 461Z-30KV	460			.94 (24)	1.33 (34)	1.25 (32)
DHS30 Z5V 781Z-30KV	780			1.18 (30)	1.33 (34)	1.25 (32)
DHS38 Z5V 122Z-30KV	1,200			1.49 (38)	1.33 (34)	1.25 (32)
DHS43 Z5V 182Z-30KV	1,800			1.69 (43)	1.33 (34)	1.25 (32)
DHS52 Z5V 252Z-30KV	2,500			2.04 (52)	1.33 (34)	1.25 (32)
DHS57 Z5V 332Z-30KV	3,300			2.24 (57)	1.33 (34)	1.25 (32)
DHS60 Z5V 362Z-30KV	3,600			2.36 (60)	1.33 (34)	1.25 (32)
DHS20 Z5V 181Z-40KV	180	40	60	.787 (20)	1.61 (41)	1.53 (39)
DHS24 Z5V 341Z-40KV	340			.94 (24)	1.61 (41)	1.53 (39)
DHS30 Z5V 571Z-40KV	570			1.18 (30)	1.61 (41)	1.53 (39)
DHS38 Z5V 921Z-40KV	920			1.49 (38)	1.61 (41)	1.53 (39)
DHS43 Z5V 132Z-40KV	1,300			1.69 (43)	1.61 (41)	1.53 (39)
DHS52 Z5V 192Z-40KV	1,900			2.04 (52)	1.61 (41)	1.53 (39)
DHS57 Z5V 242Z-40KV	2,400			2.24 (57)	1.61 (41)	1.53 (39)
DHS60 Z5V 272Z-40KV	2,700			2.36 (60)	1.61 (41)	1.53 (39)

All high voltage capacitors are standard through authorized Murata Erie Distributors.

ELECTRIC DOUBLE LAYER CAPACITORS ACECAP™



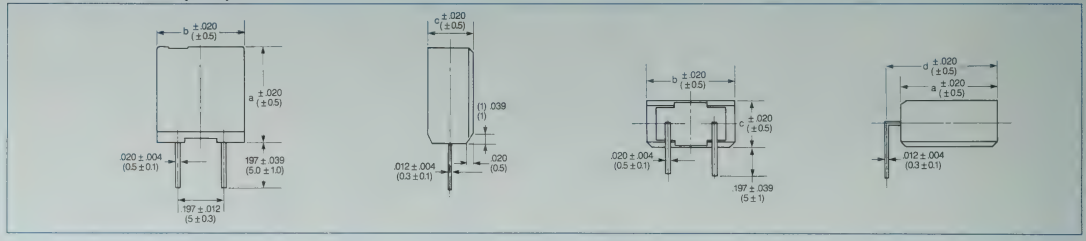
FEATURES

- Tape packaging available.
- Wide capacitance range as low as 0.022F.
- Unrestricted lengthwise and crosswise mounting.
- Compact resin case helps miniaturize and conserve space.
- Waterproof structure facilitates washing.

PART NUMBERING

AC310	301	G	473	Z	5R5
TYPE	**LEAD SHAPE**	**TEMPERATURE CHARACTERISTICS**	**CAPACITANCE**	**CAPACITANCE TOLERANCE**	**RATED VOLTAGE**
AC310 : 223Z to 473Z AC312 : 104Z	No code : Standard of vertical 301 : Standard of horizontal 501 : Flatpacktaped type (H=16.5mm) 502 : Flatpacktaped type (H=18.5mm)	+80%, −20%	Code in 3 letters (unit μ)	+80%, −20%	5.5V DC

DIMENSIONS: in. (mm)

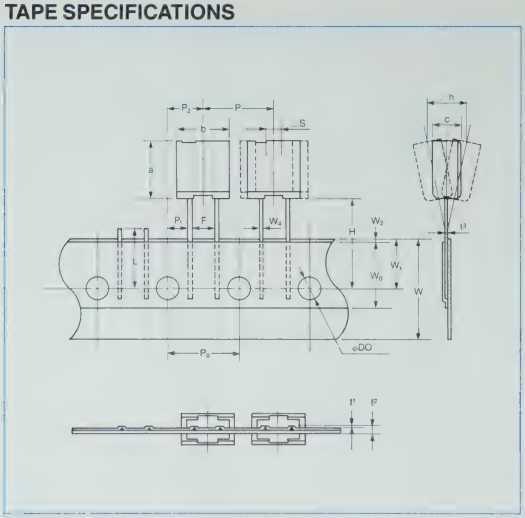


SPECIFICATIONS

Part Number	Rated Voltage (VDC)	Capacitance (F)	Capacitance Tolerance (%)	DIMENSIONS: (mm) a	b	c	d	E S R. (Ω)	Leakage* Current (μA)
AC310G223Z5R5	5.5	0.022	+80, −20	10.5	9.5	5.0	12.0	150 max.	50 max.
AC310G473Z5R5	5.5	0.047	+80, −20	10.5	9.5	5.0	12.0	60 max.	70 max.
AC312G104Z5R5	5.5	0.1	+80, −20	12.5	11.5	5.0	14.0	60 max.	150 max.

(*at 30mins)

TAPE SPECIFICATIONS



TAPE DIMENSIONS

ITEM		CODE	DIMENSIONS: (mm)	
Pitch of component		P	12.7	
Pitch of sprocket hole		P_0	12.7±0.2	
Length from hole center to lead		P_1	3.85±0.7	
Length from hole center to component center		P_2	6.35±1.3	
Lead spacing		F	$5.0^{+0.6}_{-0.2}$	
Carrier tape width		W	18.0±0.5	
Hold down tape width		W_0	12.5 max.	
Position of sprocket hole		W_1	$9.0^{+0}_{-0.5}$	
Hold down tape position		W_2	0.5±0.5	
Components bottom plane		H	16.5±0.5	
			18.5±0.5	
Diameter of sprocket hole		D_0	ϕ 4.0±0.1	
Portion to cut in case of defect		L	$11.0^{+0}_{-1.0}$	
Total tape thickness		t_1	0.6±0.3	
Total thickness, tape and lead wire		t_2	1.5 max.	
Deviation across tape		$\triangle h_1$	0±1.0	
Deviation along tape, left or right		$\triangle S$	0±0.2	
Lead cross section	Width	W_4	0.5±0.1	
	Thickness	t_3	0.3±0.1	
Body dimension		a	10.5±0.5	*12.5±0.5
		b	9.5±0.5	*11.5±0.5
		c	5.0±0.5	* 5.0±0.5

(* : Dimension of 0.1F)

All Ace capacitors are standard through authorized Murata Erie Distributors.

CHIP TRIMMING CAPACITORS
TZB04 Series

This washable chip trimmer capacitor has primarily been developed for consumer products such as small radios, pagers, radio communication equipment and audio equipment. Protected by a thermoset resin case, it provides superior resistance to heat.

FEATURES

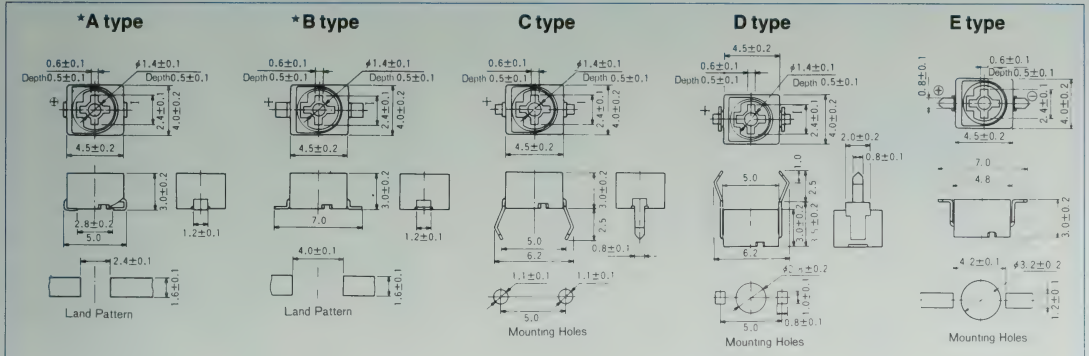
- Miniature rectangular configuration with dimensions of just 4.0(W) × 4.5(L) × 3.0(H) (mm)
- Ideal for auto-placement
- Can be immersed in flux and solder bath (260°C, 5 sec.)
- Cleaning is possible with organic solvents
- Solderable by solder paste
- Models for conventional insertion are available
- Available on tape and reel for auto-placement
- Can be reflow soldered

PART NUMBERING SYSTEM

TZB04 Z 060 B A 006

Type	Temperature Coefficient	Capacitance Value (pF)	Seal	Terminal Type	Packaging
			A=None B=Sealed		★006: 180mm D. Tape (500pcs/reel) 014: 330mm D. Tape (2500pcs/reel) 023: Magazine (100pcs/magazine) ★NO code: Bulk (500pcs/Bulk)

DIMENSIONS: mm



Note 1. Terminal type A, B and E type are available for tape packaging.
2. Terminal type A, B, C and E type are available for magazine packaging.

Tolerance: ±0.5

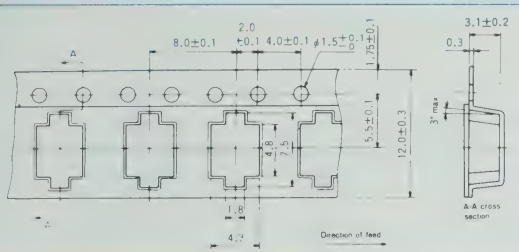
Part Number	Capacitance (pF) Min.	Capacitance (pF) Max.	Temp. Coefficient (ppm/°C)	Q min. (1MHz, C max.)	Working Voltage DC
SINGLE CERAMIC PLATE TYPE					
*TZB04Z030□□	1.4	3.0	NPO±200	300	100
*TZB04Z060□□	2.0	6.0	NPO±200	500	100
*TZB04N100□□	3.0	10.0	N150±300	500	100
*TZB04R200□□	4.5	20.0	N750±300	500	100
*TZB04P300□□	6.5	30.0	N1200±500	300	100
*TZB04P400□□	8.5	40.0	N1200±500	300	100
MONOLITHIC CERAMIC PLATE TYPE					
*TZB04Z250□□	4.0	25.0	NPO±300	300	50
*TZB04R500□□	7.0	50.0	N750±300	300	50

- Rated Voltage: 50VDC
- Withstand Voltage: 110VDC
- Insulation Resistance. 10^4MΩ min.

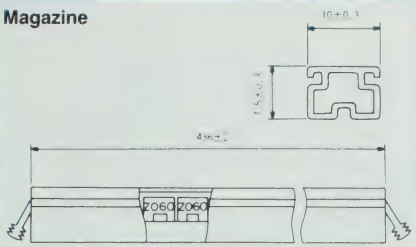
Torque: 15 to 100g-cm

PACKAGING

Tape



Magazine



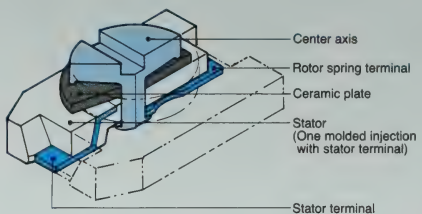
★Available as standard through authorized Murata Erie Distributors.

CHIP TRIMMER CAPACITORS
TZC03 SERIES

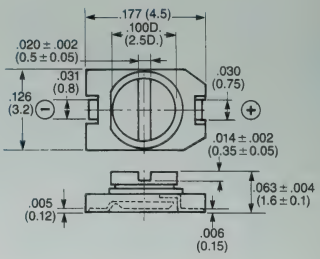
This new low profile chip trimming capacitor is specifically designed to meet the requirements of high density surface mount applications and automated placement equipment.

FEATURES
- Extremely small size—just 3.2 mm × 4.5 mm × 1.6 mm
- Designed for auto-placement in surface mount applications
- Color-coded
- Heat-resistant resin withstands reflow soldering temperatures
- Can be adjusted with standard adjustment tools

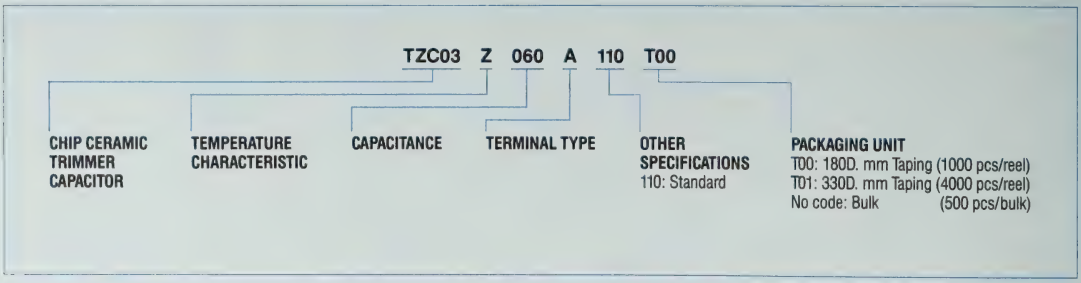
CONSTRUCTION



DIMENSIONS: mm



PART NUMBERING SYSTEM



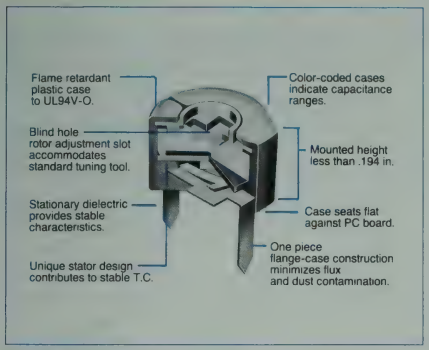
RATINGS

Part Number	Capacitance Min. (max.)	Capacitance Max. (+80, −0%)	Temperature Coefficient (ppm/°C)	Q (1MHz, Cmax)	Working Temperature Range (°C)	Stator Color
TZC03Z060□□169	2.0	6.0	NPO ± 300	500 min.	−25 to +85	Blue
TZC03R100□□169	3.0	10.0	N750 ± 300	500 min.	−25 to +85	White
TZC03P200□□169	5.0	20.0	N1200 ± 500	300 min.	−25 to +85	Red

• **Rated voltage**...100VDC • **Withstand voltage**...220VDC • **Insulation resistance**...10^4MΩmin. • **Torque**...15 to 200g·gm

All values are standard through authorized Murata Erie Distributors—T00 packaging code and in bulk packaging.

CERAMIC TRIMMING CAPACITORS
TZ03 SERIES


Flame retardant plastic case to UL94V-O.
Color-coded cases indicate capacitance ranges.
Blind hole rotor adjustment slot accommodates standard tuning tool.
Mounted height less than .194 in.
Stationary dielectric provides stable characteristics.
Case seats flat against PC board.
Unique stator design contributes to stable T.C.
One piece flange-case construction minimizes flux and dust contamination.

FEATURES

- QPL to MIL-C-81 (CV42)
- Excellent shock and vibration resistance
- Exceptionally linear TC
- Dust and flux resistant construction
- Plastic case meets UL94V-0
- Very adaptable to auto-insertion
- Washable unit featuring "o" ring seal

SPECIFICATIONS

Temperature Range: −55°C to +85°C
Working Voltage: 100 VDC or 50 VDC (100V units) or 110 VDC (50V units)
Withstanding Voltage: 220 VDC
Insulation Resistance: 10^4MΩ min. (50 VDC)

PART NUMBERING SYSTEM

TZ03 Z 070 ER 169

MODEL	TEMPERATURE CHARACTERISTIC	CAPACITANCE (pF)	TERMINAL CONFIGURATION	STANDARD SEALED UNIT

SPECIFICATIONS

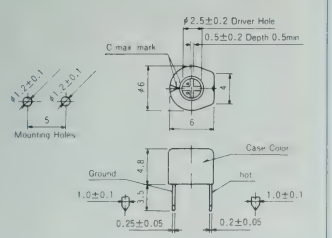
Part Number	Capacitance (pF) Min.	Capacitance (pF) Max.	Temp. Coeff. (ppm/°C)	Q 1MHz, C max.)	Temperature (°C)	Case Color
SINGLE CERAMIC PLATE TYPE, 100V SERIES						
*TZ03Z2R3□□169	1.25 max.	2.3 $^{-0}_{+50\%}$	NPO ±200	300 min.	-55- +85	Black
*TZ03Z050□□169	1.8 max.	5.0 $^{-0}_{+50\%}$	NPO ±200	300 min.	-55- +85	Blue
*TZ03Z070□□169	2.0 max.	7.0 $^{-0}_{+50\%}$	NPO ±200	300 min.	-55- +85	Blue
*TZ03Z100□□169	2.7 max.	10.0 $^{-0}_{+50\%}$	NPO ±200	500 min.	-55- +85	Blue
*TZ03N100□□169	2.1 max.	10.0 $^{-0}_{+50\%}$	N200 ±200	500 min.	-55- +85	White
*TZ03T110□□169	3.0 max.	11.0 $^{-0}_{+50\%}$	N450 ±300	500 min.	-55- +85	White
*TZ03T200□□169	4.2 max.	20.0 $^{-0}_{+50\%}$	N450 ±300	500 min.	-55- +85	Pink
*TZ03R200□□169	4.2 max.	20.0 $^{-0}_{+50\%}$	N750 ±300	500 min.	-55- +85	Red
*TZ03R300□□169	5.2 max.	30.0 $^{-0}_{+50\%}$	N750 ±300	500 min.	-55- +85	Green
*TZ03P450□□169	6.8 max.	45.0 $^{-0}_{+50\%}$	N1200 ±500	300 min.	-55- +85	Yellow
*TZ03P600□□169	9.8 max.	60.0 $^{-0}_{+50\%}$	N1200 ±500	300 min.	-55- +85	Brown
*TZ03P700□□169	12.0 max.	70.0 $^{-0}_{+50\%}$	N1200 ±500	300 min.	-55- +85	Brown
MONOLITHIC CERAMIC PLATE TYPE, 50V SERIES						
*TZ03Z500□□169	6 max.	50 $^{-0}_{+100\%}$	NPO ±300	300 min.	-55- +85	Orange
*TZ03R900□□169	9 max.	90 $^{-0}_{+100\%}$	N750 ±300	300 min.	-55- +85	Black
*TZ03R121□□169	10 max.	120 $^{-0}_{+100\%}$	N750 ±300	300 min.	-55- +85	Black

□□: Terminal Shape *QPL approval to MIL-C-81

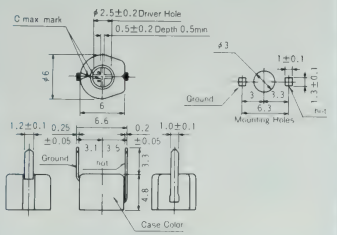
Stray capacitance for side adjustment (Y type) adaptor is .2pF, for three terminal (TH type) adaptor is .4pF.

DIMENSIONS: mm

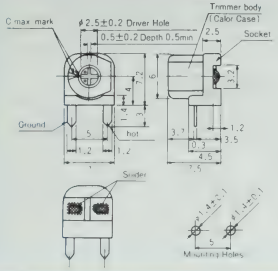
*ER TYPE, TOP ADJUSTMENT



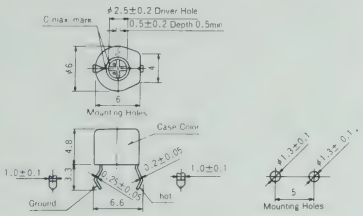
BR TYPE, BOTTOM ADJUSTMENT



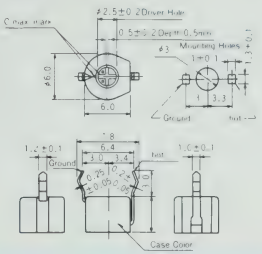
YR TYPE, SIDE ADJUSTMENT



*FR TYPE, SELF-STANDING



NR TYPE, SELF-STANDING, BOTTOM ADJUSTMENT



★Available as standard through authorized Murata Erie Distributors.

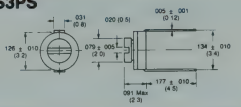
CERAMIC TRIMMING CAPACITORS
DVS 3 SERIES

SPECIFICATIONS

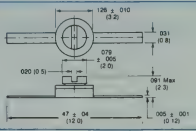
Operating Temp. Range:	-55 to +85°C
Working Voltage:	25 VDC
Test Voltage:	50 VDC
"Q" Factor:	500 min. @ 1MHz
Insulation Resistance:	10^4 megohms min.
Tuning Torque:	.2 to 1.5 in.-oz.

DIMENSIONS: in. (mm)

DVS3PS



DVS3A



PREFERRED VALUES/ELECTRICAL DATA

Part Number	Cap. Range (pF)	Temp. Coeff. (ppm/°C)	Color Code
*DVS3PS6A	1.5 to 6.0	NPO ±300	Red
*DVS3PS10A	2.0 to 10.0	NPO ±300	Black
*DVS3PS15A	3.0 to 15.0	NPO ±300	Yellow
*DVS3PS20A	5.0 to 20.0	NPO ±300	Violet
*DVS3PS35D	5.0 to 35.0	N750 ±350	—

Part Number	Cap. Range (pF)	Temp. Coeff. (ppm/°C)	Color Code
*DVS3A6A	1.5 to 6.0	NPO ±300	Red
*DVS3A10A	2.0 to 10.0	NPO ±300	Black
*DVS3A15A	3.0 to 15.0	NPO ±300	Yellow
*DVS3A20A	5.0 to 20.0	NPO ±300	Violet
*DVS3A35D	5.0 to 35.0	N750 ±350	—

PART NUMBERING SYSTEM (DVS3 and DV6)

DVS3	PS	20	A
SERIES	MOUNTING STYLE	MAX. CAP.	T.C. CODE

DV11 SERIES

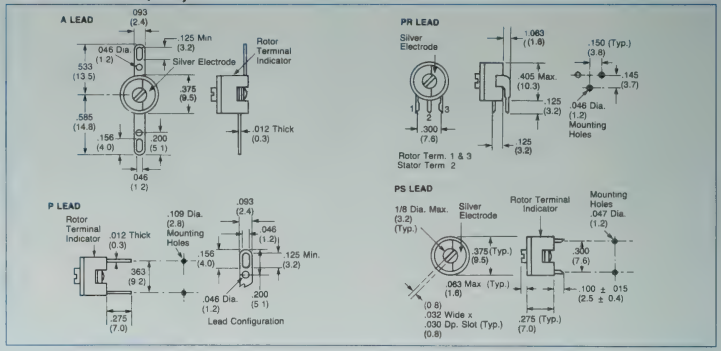
SPECIFICATIONS

Operating Temp. Range:	-55 to +125°C
Working Voltages:	350 VDC for -55 to +85°C 200 VDC for +85 to 125°C Except N650 and N1500 units; 200 VDC for -55 to +85°C 100 VDC for +85 to +125°C
Test Voltage:	500 VDC
"Q" Factor:	500 min. @ 1MHz
Insulation Resistance:	10^4 megohms min.
Tuning Torque:	1 to 16 in.-oz.

PART NUMBERING SYSTEM

DV11	PS	18	A
SERIES	MOUNTING STYLE	MAX. CAP.	TC CODE

DIMENSIONS: in. (mm)



PREFERRED VALUES

DV11 Part Number	Cap. Range Min.	Cap. Range Max.	Nominal TC in ppm/°C
*DV11A8A	2.0	8.0	NPO
DV11A11B	2.5	11.0	N300
DV11A15D	3.0	15.0	N650
*DV11A18A	5.5	18.0	NPO
*DV11A25B	7.0	25.0	N300
*DV11A35D	9.0	35.0	N650
*DV11A60Q	15.0	60.0	N1500
*DV11P8A	2.0	8.0	NPO
*DV11P11B	2.5	11.0	N300
*DV11P15D	3.0	15.0	N650
*DV11P18A	5.5	18.0	NPO
*DV11P25B	7.0	25.0	N300
*DV11P35D	9.0	35.0	N650
*DV11P60Q	15.0	60.0	N1500

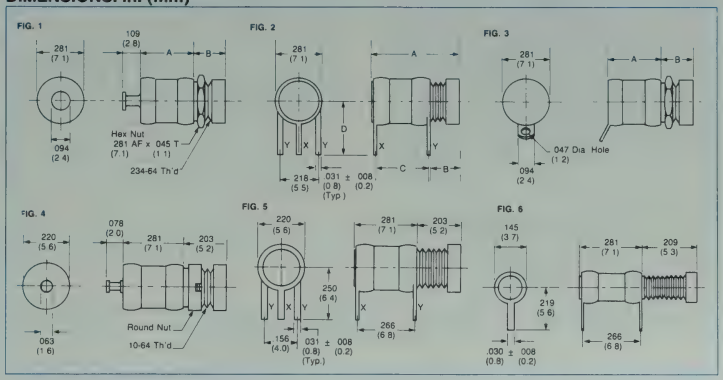
PREFERRED VALUES

DV11 Part Number	Cap. Range Min.	Cap. Range Max.	Nominal TC in ppm/°C
*DV11PR8A	2.0	8.0	NPO
*DV11PR11B	2.5	11.0	N300
*DV11PR15D	3.0	15.0	N650
*DV11PR18A	5.5	18.0	NPO
*DV11PR25B	7.0	25.0	N300
*DV11PR35D	9.0	35.0	N650
*DV11PR60Q	15.0	60.0	N1500
*DV11PS8A	2.0	8.0	NPO
*DV11PS11B	2.5	11.0	N300
*DV11PS15D	3.0	15.0	N650
*DV11PS18A	5.5	18.0	NPO
*DV11PS25B	7.0	25.0	N300
*DV11PS35D	9.0	35.0	N650
*DV11PS60Q	15.0	60.0	N1500

★Available as standard through authorized Murata Erie Distributors.

PRECISION MINIATURE AIR VARIABLE CAPACITORS MVM SERIES

DIMENSIONS: in. (mm)



SPECIFICATIONS

Operating Temp. Range:	-65°C to +125°C
Working Voltage:	250 VDC
Test Voltage:	500 VDC
Insulation Resistance:	$>10^6$ megohms at 250 VDC
Tuning Torque:	0.5 to 5.0 in. oz.

ELECTRICAL DATA/PREFERRED VALUES[1]

MECHANICAL DATA

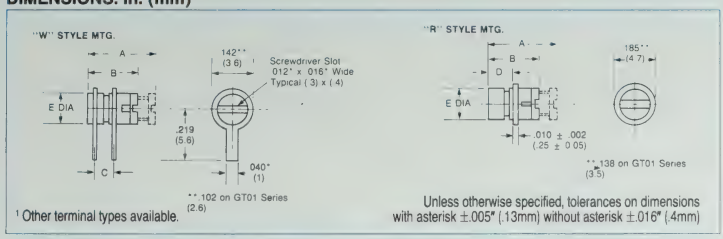
Part No.	Military Specif. Designation	Capacitance Range (pF)	"Q" Factor @ 100 MHz	Temp. Coeff. (ppm/°C)	Fig. No.	A	B	C	D
★MVM010	PC31J100	0.8 to 10.0	>5000	0±15	1	.288	.196	—	—
★MVM010W	PC26J100	0.8 to 10.0	>5000	0±15	2	.510	.172	.297	.312
★MVM010M	PC25J100	0.8 to 10.0	>5000	0±15	3	.302	.196	—	—
MVM010H	—	0.8 to 10.0	>5000	0±15	*	.288	.196	—	—
★MVM014	PC31J140	1.0 to 14.0	>3000	0±25	1	.288	.196	—	—
★MVM014W**	—	1.0 to 14.0	>3000	0±25	2	.510	.172	.297	.312
MVM014M	PC25J140	1.0 to 14.0	>3000	0±25	3	.302	.196	—	—
★MVM020	PC31J200	1.0 to 20.0	>1500	0±25	1	.500	.242	—	—
★MVM020W**	—	1.0 to 20.0	>1500	0±25	2	.750	.150	.562	.500
★MVM020M	PC25J200	1.0 to 20.0	>1500	0±25	3	.514	.242	—	—
★MVM006	PC31J060	0.4 to 6.0	>10000	0±15	4	—	—	—	—
MVM106	PC29J100	0.8 to 10.0	>7500	0±15	4	—	—	—	—
★MVM006W	—	0.4 to 6.0	>10000	0±15	5	—	—	—	—
★MVM106W	—	0.8 to 10.0	>7500	0±15	5	—	—	—	—
★MVM003W	PC28J3RS	0.35 to 3.5	>10000	0±15	6	—	—	—	—

Other styles available. **No slot in seal cap. *Not shown. Same as Figure 1, but with screw turret.

★Available as standard through authorized Murata Erie Distributors.

HIGH RESOLUTION MICROMINIATURE SAPPHIRE TRIMMERS FOR MICROWAVE CIRCUITS

DIMENSIONS: in. (mm)



[1] Other terminal types available.

Unless otherwise specified, tolerances on dimensions with asterisk ±.005" (.13mm) without asterisk ±.016" (.4mm)

SPECIFICATIONS

Operating Temperature:	-65°C to +125°C
Working Voltage:	500 VDC
Test Voltage:	1000 VDC
Insulation Resistance:	10^4 megohms @ 500 VDC
Temperature Coefficient:	+350 ± 100ppm/°C (+200 ± 100ppm/°C for GT01 series)
Tuning Torque	0.2 to 2.0 in. oz. (0.1 to 1.0 in. oz. for GT01 series)

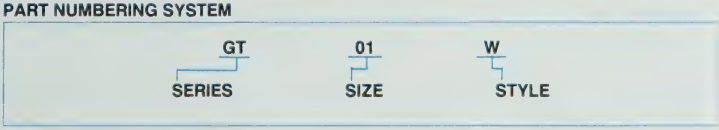
ELECTRICAL DATA/PREFERRED VALUES

Series	Capacitance Range (pF)	"Q" Factor @ 250 MHz
GT 01	0.3 — 1.2	4000
GT 12	0.4 — 2.5	3000
GT 24	0.6 — 4.5	2000
GT 38	0.8 — 8.0	1000

MECHANICAL DATA/PREFERRED VALUES

SERIES	A	B	C	D	E
GT01	.215 (5.5)	.156 (4)	.080 (2)	.083 (2.1)	.075 (1.9)
GT12	.213 (5.4)	.169 (4.3)	.080 (2)	.091 (2.3)	.118 (3)
GT24	.323 (8.2)	.246 (6.3)	.126 (3.2)	.142 (3.6)	.118 (3)
GT38	.571 (14.5)	.413 (10.5)	.250 (6.4)	.250 (6.4)	.118 (3)

PART NUMBERING SYSTEM



CHIP, CERMET LOW PROFILE RVG3A

The new SMT RVG3A Series of chip trimming potentiometers features an exceptionally low profile—just 1.5 mm above the PC board—allowing higher component densities than possible before. Its alumina substrate and cermet resistance element provide long term reliability and are designed to withstand the stress of both flow and reflow soldering operations.

FEATURES

- Ultra-low profile—just 1.5 mm H.
- Extremely light weight
- Nickel barrier layer terminations for solderability
- Suitable for both flow and reflow soldering
- Offered on 8 mm tape for auto-placement
- Standard screw driver adjustable
- Suitable for auto-tuning (RVG3A08)

PART NUMBERING SYSTEM

RVG3 A 01A – 103 VM – TL

TYPE	ADJUSTMENT	SERIAL NO.	RESISTANCE	TOLERANCE	PACKAGING
			ex.: (103=10KΩ)	VM=±25%	**RVG3A01** Blank=Bulk TL =Tape 180 mm D. reel (2500 pcs/reel) TM=Tape 330 mm D. reel (8000 pcs/reel) **RVG3A08** Blank=Bulk TP =Tape 180 mm D. reel (2000 pcs/reel) TR =Tape 330 mm D. reel (8000 pcs/reel)

STANDARD RESISTANCES

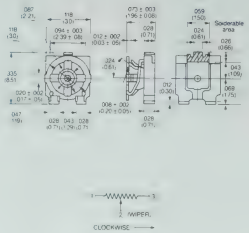
RES. (ohms)	CODE	RES. (ohms)	CODE
200	201	50K	503
500	501	100K	104
1K	102	200K	204
2K	202	500K	504
5K	502	1M	105
10K	103	2M	205
20K	203		

ENVIRONMENTAL CHARACTERISTICS

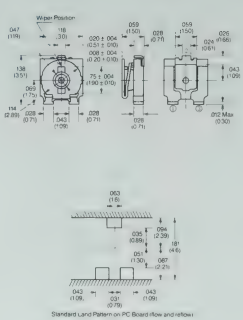
Humidity Load Life	Res. Change : +3%
Load Life	Res. Change : ±3%
Temperature Cycle	Res. Change : ±3%
Temperature Coefficient of Resistance	±250 ppm/°C
Rotational Life (20 Cycle)	Res. Change : ±10%

DIMENSIONS: in. (mm)

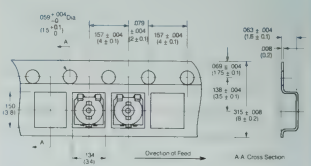
RVG3A01A



RVG3A08 (Phillips Head)



TAPE & REEL

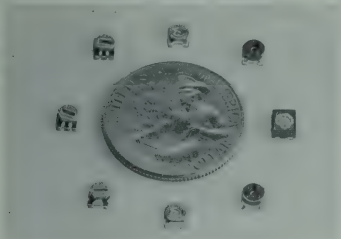


SPECIFICATIONS

Resistance Range	200Ω to 2MΩ
Resistance Tolerance	±25%
Taper	Linear
Power Rating	1/10W at 70°C
Maximum Working Voltage	50V DC
Operating Temperature Range	–55°C to +125°C
Rotational Torque	2.0 to 24.5 mNm
Effective Rotational Angle	270°, ±10°

All values are standard through authorized Murata Erie Distributors.

CHIP TRIMMING POTENTIOMETERS
CERMET
RVG4F, RVG4H, RVG4M



The RVG4 series has presoldered electrodes to facilitate surface mounted auto-placement and reflow soldering. The wide 200° rotational angle improves performance and resistance range.

APPLICATIONS

The RVG4 series are widely applicable for fine circuit adjustments in consumer electronic equipment such as small VTR cameras, TV tuners, portable TV and stereo sets, as well as transceiver communication circuits and industrial motor controllers, photoelectric switches and medical electronic equipment.

FEATURES

- Miniature size—3.8×4.5 ×2.25(mm) for close component spacing (for RVG4F types)
- Easily adjusts with regular screwdriver
- Large, solid axle not affected by vacuum chuck during auto-placement (F/H/M types)
- Nickel barrier layer terminals eliminate solder leaching in reflow soldering operation (H type)
- Available on 12mm Tape and Reel for auto-placement

PART NUMBERING SYSTEM

RVG4 F 03A – 103 VM TA

TYPE	PIN CONFIGURATION	SERIAL NO.	RESISTANCE CODE	RESISTANCE TOLERANCE	PACKAGE
	F&H=Terminal		(103=10KΩ)	VM=±25%	TA=Tape and Reel (500 pcs) TC=Tape and Reel (1000 pcs)

STANDARD RESISTANCES

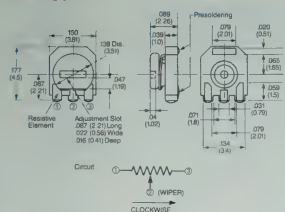
RES. (ohms)	CODE	RES. (ohms)	CODE
100	101	20K	203
200	201	30K	303
300	301	50K	503
500	501	100K	104
1K	102	200K	204
2K	202	300K	304
3K	302	500K	504
5K	502	1M	105
10K	103	2M	205

SPECIFICATIONS

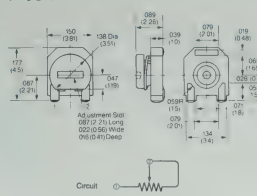
Item	RVG4M	RVG4H	RVG4F
Resistance Range	100Ω to 2MΩ		
Tolerance	±25%		
Taper	B (Linear)		
Power Rating	0.1W at 70°C		
Max. Working Voltage	50V DC		
Torque	2.0 to 24.5mNm		
Electrical Rotation	200°±10°		

DIMENSIONS: in. (mm)

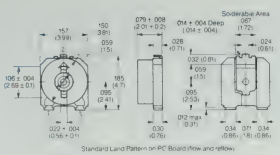
RVG4F03A



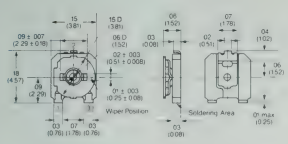
RVG4F05A



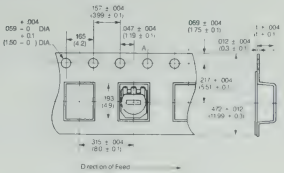
RVG4M (WASHABLE)



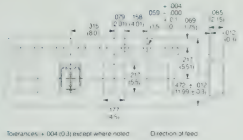
RVG4H01A



PLASTIC TAPE



TAPE



ENVIRONMENTAL SPECIFICATIONS

	Resistance Change	Condition					
Humidity	±3%	500 hrs. at 40°C, 90-95% RH without loading, and 5 hrs. at room temperature.					
Temperature Exposure	±3%	500 hrs., at 70°C without loading, and 1.5 hrs. at room temperature.					
Humidity Load Life	±3%	At 40°C, 90-95% RH rated voltage 1.5 hrs. ON, and 0.5 hrs. OFF for 1000±12 hrs. and 5 hrs. at room temperature.					
Temperature Load Life	±3%	At 70°C, rated voltage 1.5 hrs. ON and 0.5 hrs. OFF for 1000±12 hrs. and 5 hrs. at room temperature.					
Temperature Cycling	±3%	5 cycles	Sequence	1	2	3	4
			Temp. (°C)	−55	+25	+125	+25
			Time (min.)	30	10	30	10
Temperature Coefficient of Resistance	±250ppm/°C		Sequence	1	2	3	4
			Temp. (°C)	+25	−55	+25	+125
			Time (min.)	30 to 45 each			
Rotational Life	±10%	Continuous 10 cycles without loading					

All values are standard through authorized Murata Erie Distributors.

CHIP, CERMET SEALED

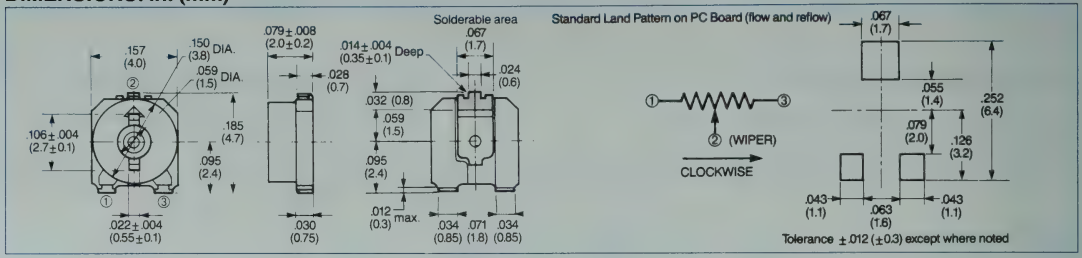
POT0101

Murata Erie's new POT0101 chip trimming potentiometer for SMT opens a new era in performance for this type of component. It features an alumina substrate and cermet resistance element for maximum stability and reliability. It is also uniquely sealed to withstand all cleaning processes.

FEATURES

- Alumina Substrate—cermet resistance element
- Extremely small—just .185 (4.7) × .158 (4.0) × .079 (2.0) mm
- Uniquely sealed to withstand immersion cleaning
- Highly reliable

DIMENSIONS: in. (mm)

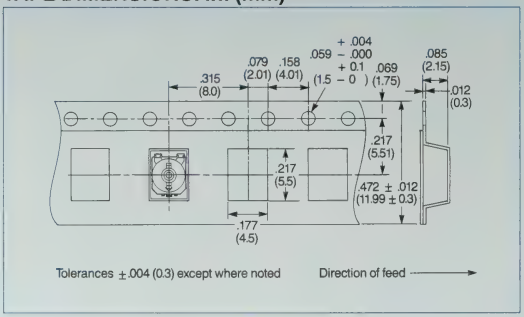


PART NUMBERING SYSTEM

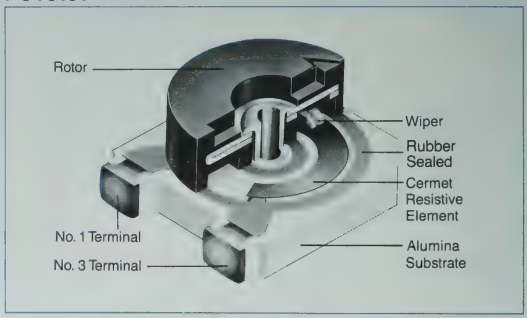
POT0101 A – 1 – 203 TA

MODEL	TERMINAL TYPE	VARIATION STD=1	RESISTANCE CODE	PACKAGING
				Bulk=No code TA=180mm D. Reel (500 pcs./reel) TD=338mm D. Reel (3000 pcs./reel)

TAPE DIMENSIONS: in. (mm)



POT0101



SPECIFICATIONS

Standard Resistance Range	200Ω to 2MΩ
Resistance Tolerance	±20%
Power Rating	0.25W at 70°...0W at 125°C
Maximum Working Voltage	200V
Maximum Wiper Current	100mA
Operating Temperature Range	−55°C to +125°C
Effective Electrical Rotation	240°±10°
End Resistance	1% max.
Contact Resistance Variation	3% max. of nominal resistance
Dielectric Strength	250 VAC (leakage current 50μA max.)
Shaft Torque	10 to 150 g-cm
Temperature Coefficient	±100ppm/°C (200Ω ≤ R < KΩ) ±150ppm/°C (100KΩ ≤ R)

ENVIRONMENTAL SPECIFICATIONS

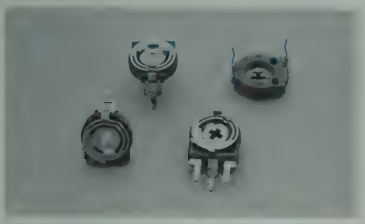
Thermal Shock	Total Resistance Change : ±2% Setting Stability : ±1%
Humidity (500 hours) (40°C, 95% RH)	Total Resistance Change : ±2% Setting Stability : ±2%
Shock (20G)	Total Resistance Change : ±1% Setting Stability : ±1%
Vibration (100G)	Total Resistance Change : ±1% Setting Stability : ±1%
Load Life (70°C 0.25W)	Total Resistance Change : ±3% Setting Stability : ±2%
High Temperature Exposure (250 hours)	Total Resistance Change : ±2% Setting Stability : ±2%
Rotational Life (100 cycles)	Total Resistance Change : ±5%

STANDARD RESISTANCES

RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE
200	201	5K	502	50K	503	500K	504
500	501	10K	103	100K	104	1M	105
1K	102	20K	203	200K	204	2M	205
2K	202						

All values are standard through authorized Murata Erie Distributors: TA packaging code and in bulk packaging.

SUBMINIATURE TRIMMING POTENTIOMETERS 1/10 Watt Carbon



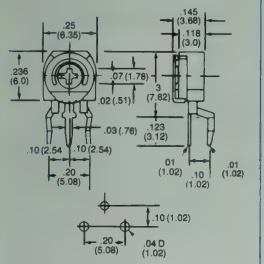
FEATURES

- Miniature size
- Injection molded
- Low cost
- Multi-contact wiper
- Adjustable from both sides
- Carbon element

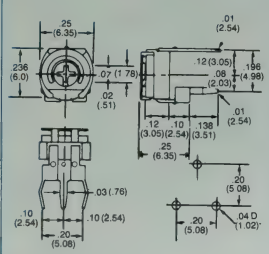
DIMENSIONS: in. (mm)

Tol. = ± .02 (.51)

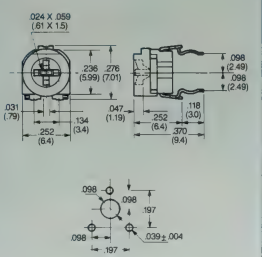
***RVF6W01A**



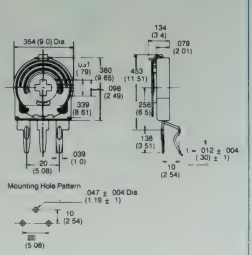
***RVF6P01A**



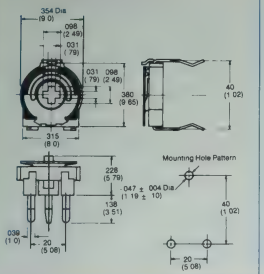
RVF6P51



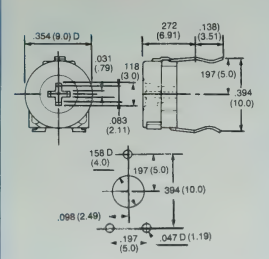
RVF8W01A



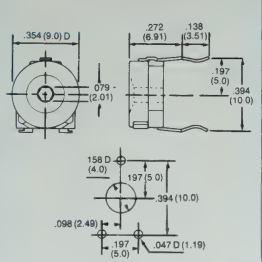
***RVF8P01A**



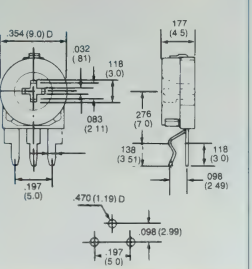
***RVF8P51A-10**



RVF8P61A-10



RVF8W51A-10



PART NUMBERING SYSTEM

RVF	8	P	01A	103
MODEL	SIZE	ADJUSTMENT P = Vert. W = Horiz.	SERIAL NO.	RESISTANCE CODE

SPECIFICATIONS

	RVF8	RVF6
Resistance Range	100 ohms to 1 megohm	200 ohms to 1 megohm
Tolerance	±25%	±30%
Residual Resistance	Less than 500Ω, less than 5% of nominal resistance 500Ω and up, less than 3% of nominal resistance.	
Taper	Linear	
Power Rating	.015 W (at 70°C) Derated to 0W at 85°C	0.1W (at 70°C) Derated to 0W at 85°C
Max. Working Voltage	150 VDC	50VDC
Torque	.4 - 4.17 in. oz.	.28 to 4.86 in. oz.
Terminal Strength	17.64 oz. when the force is applied in the direction of the axes of the terminal.	—
Effective Rotation	Elec. 245° Mech. 270°±10°	Mech. 220° ±10°
Stop Strength	13.9 in. oz.	6.9 in. oz.

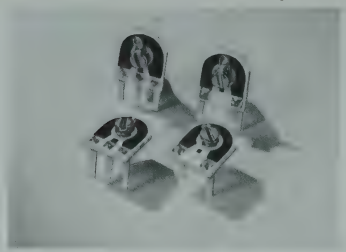
★Available as standard through authorized Murata Erie Distributors.

*STANDARD RESISTANCES

RES. (ohms)	CODE
200	201
300	301
500	501
1K	102
2K	202
3K	302
5K	502
10K	103
20K	203
30K	303
50K	503
100K	104
200K	204
300K	304
500K	504
1M	105

SUBMINIATURE TRIMMING POTENTIOMETERS
1/10 Watt Carbon, 1/5 Watt Cermet

RVX, RVG

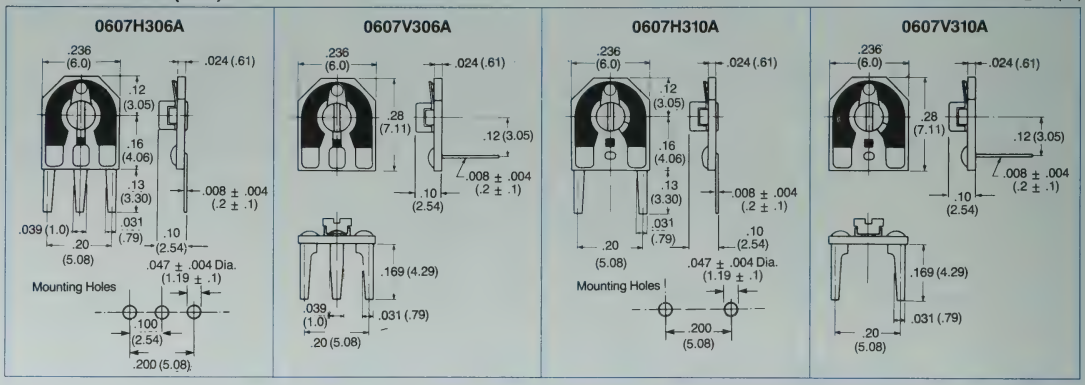


FEATURES
- Excellent humidity characteristics
- Non-combustible design
- Economical
- Miniature size
- Wide resistance range

APPLICATIONS
The Murata Erie Model RVA and RVG 0607 is widely applicable for automatic camera exposure controls, for circuit adjustment in portable transceivers, electronic musical instruments, household appliances (television receivers, radio receivers, tape-recorders), and in many other types of electronic equipment.

DIMENSIONS in. (mm)

Tol. = ± .02 (.51)



PART NUMBERING SYSTEM

RVX 0607 H 306A – 103 N

MODEL	ADJUSTMENT	SERIAL NO.	RESISTANCE CODE	RESISTANCE TOLERANCE CODE
RVX=Carbon RVG=Cermet	V=Vert., H=Horiz.			M=±20%, N=±30%

SPECIFICATIONS

Characteristic	RVX (Carbon)	RVG (Cermet)
Resistance Range	200 ohms-2 Megohms	200 ohms-1 Megohm
Tolerance	±30%	±20%
Residual Resistance	Less than 500Ω, 5Ω max. 500Ω and up, less than 1% of nominal resistance.	Less than 500Ω, 5Ω max. 500Ω and up, less than 1% of nominal resistance.
Taper	Linear	Linear
Power Rating	1/10W (70°C) Derated to 0W at 100°C	1/5W (70°C) Derated to 0W at 125°C
Max. Working Voltage	50 VDC	50 VDC
Torque	.27 - 2.8 in. oz	.27 - 2.8 in. oz
Terminal Strength	7.05 oz.	7.05 oz.
Effective Rotation	Elec. 220°	Elec. 220°

STANDARD RESISTANCES

RES. (ohms)	CODE
200	201
300	301
500	501
1K	102
2K	202
3K	302
5K	502
10K	103
20K	203
30K	303
50K	503
100K	104
200K	204
300K	304
500K	504
1M	105
2M	205

PREFERRED TYPES

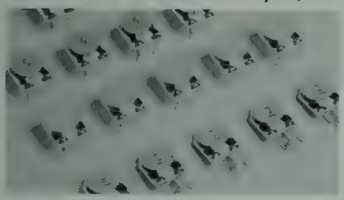
RVX CARBON	
PART NUMBER	TOL. (%)
RVX0607H-306A-(000)N	±30
RVX0607V-306A-(000)N	±30
RVX0607H-310A-(000)N	±30
RVX0607V-310A-(000)N	±30
Note: No knob color indicated in Part No.	

RVG (CERMET)	
PART NUMBER	TOL. (%)
RVG0607H-306A-(000)M	±20
RVG0607V-306A-(000)M	±20
RVG0607H-310A-(000)M	±20
RVG0607V-310A-(000)M	±20
Note: No knob color indicated in Part No.	

All values are standard through authorized Murata Erie Distributors.

SUBMINIATURE TRIMMING POTENTIOMETERS
1/5 Watt Carbon, 1/2 Watt Cermet

RVX, RVG

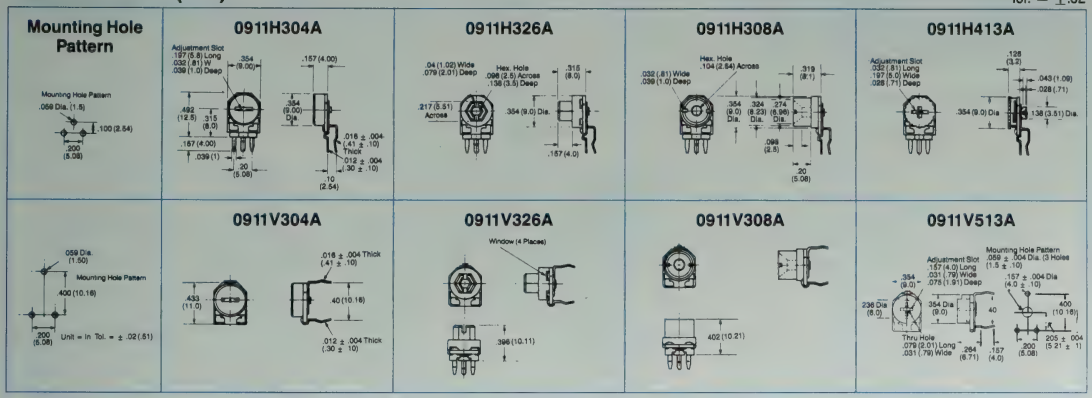


FEATURES
- Diminutive size
- Wide resistance ranges
- Excellent linearity
- Economy
- Non-combustible design
- Extreme resistance to adverse environments
- Excellent humidity resistance
- Alumina-base
- Resistant to flux solvents

CERMET
- All of the features above plus excellent heat dissipation and T.C.
- Low noise

DIMENSIONS in. (mm)

Tol. = ±.02



PART NUMBERING SYSTEM

RVX 0911 H 304A 04 — 103 M

MODEL	ADJUSTMENT	SERIAL NO.	KNOB COLOR*	RESISTANCE CODE	RESISTANCE TOLERANCE CODE
RVG = Cermet RVX = Carbon	V=Vert., H=Hor.				M±20%

*01, red; 02, green; 03, blue; 04, yellow; 05, white; 06, orange; 07, natural; 08, brown; 09, gray; 10, black
For other knob configurations, contact factory.

MARKING: Marked with Standard EIA date, resistance and tolerance codes.

PREFERRED TYPES

RVX (CARBON)	
Part Number	**Tol. (%)**
*RVX0911H304A04-(000)M	±20
*RVX0911V304A04-(000)M	±20
RVX0911H326A04-(000)M	±20
RVX0911V326A04-(000)M	±20
RVX0911H308A04-(000)M	±20
RVX0911V308A04-(000)M	±20
*RVX0911H413A04-(000)M	±20
*RVX0911V513A04-(000)M	±20
RVG (CERMET)	
Part Number	**Tol. (%)**
*RVG0911H304A10-(000)M	±20
*RVG0911V304A10-(000)M	±20
RVG0911H326A10-(000)M	±20
RVG0911V326A10-(000)M	±20
RVG0911H308A10-(000)M	±20
RVG0911V308A10-(000)M	±20
*RVG0911H413A10-(000)M	±20
*RVG0911V513A10-(000)M	±20

SPECIFICATIONS

Characteristic		RVX (Carbon)	RVG (Cermet)
Resistance Range		0911 100— 2 Megohms	0911 200— 1 Megohm
Tolerance		±20%	±20%
Residual Resistance		Less than 500Ω, 5Ω max. 500Ω and up, less than 1% of nominal resistance	
Taper		Linear	Linear
Power Rating**		1/5W (70°C)	1/2W (70°C)
Max. Working Voltage		250 VDC	350 VDC
Torque		0.56 - 4.86 in. oz.	0.56 - 4.86 in. oz.
Terminal Strength		35.27 oz.	35.27 oz.
Effective Rotation	Elec.	240°	240°
	Mech.	260°±10°	260°±10°
Stop Strength		13.9 in. oz.	

*Derated to 0 watts at 100°C (for Carbon, at 125°C (for Cermet)

★STANDARD RESISTANCES

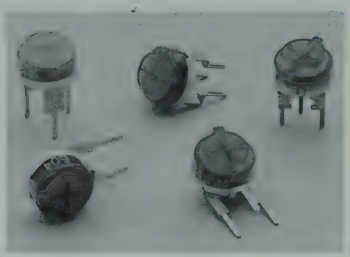
RVX 0911 CARBON					
RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE
100	101	3K	302	100K	104
200	201	5K	502	200K	204
300	301	10K	103	300K	304
500	501	20K	203	500K	504
1K	102	30K	303	1M	105
2K	202	50K	503	2M	205

RVG 0911 CERMET					
RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE
200	201	5K	502	100K	104
300	301	10K	103	200K	204
500	501	20K	203	300K	304
1K	102	30K	303	500K	504
2K	202	50K	503	1M	105
3K	302				

★Available as standard through authorized Murata Erie Distributors.

MICROMINIATURE TRIMMING POTENTIOMETERS
1/3 Watt Cermet

RVG



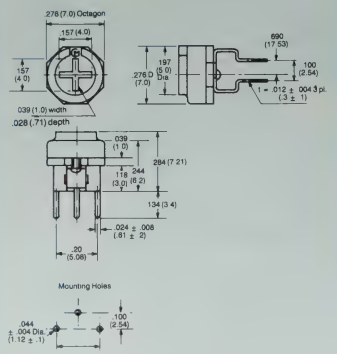
FEATURES
- Excellent humidity characteristics
- Dust-resistant construction
- Non-combustible design
- 1/3 watt power rating
- Economical
- Miniature size
- Wide resistance range

APPLICATIONS
The Murata Erie Model RVS, RVG 0707 is widely applicable for data processing equipment, for circuit adjustment in portable transceivers, electronic musical instruments, household appliances, (television receivers, radio receivers, tape-recorders), and in many other types of electronic equipment.

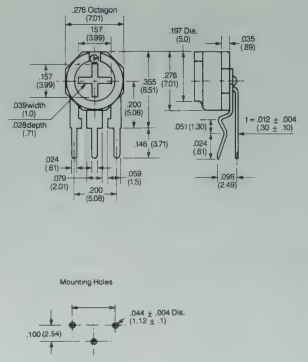
DIMENSIONS: in. (mm)

Tol. = ± .02 (.51)

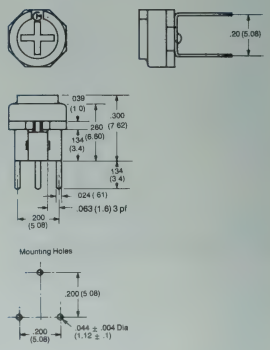
***0707V100A**



***0707H100A**



0707V101A



PART NUMBERING SYSTEM

RVG 0707H 100A 10 – 103 M

MODEL	SERIAL NO.	KNOB COLOR*	RESISTANCE CODE	RESISTANCE TOLERANCE
RVS=Special Cermet RVG=Cermet		03: Blue for RVS 10: Black for RVG		M=±20%

*STANDARD RESISTANCES

RES. (ohms)	CODE
100	101
200	201
300	301
500	501
1K	102
2K	202
3K	302
5K	502
10K	103
20K	203
30K	303
50K	503
100K	104
200K	204
300K	304
500K	504
1M	105

SPECIFICATIONS

Resistance Range	100 ohms to 1 Megohm (RVS), 200 ohms to 1 Megohm (RVG)
Tolerance	±20%
Temperature Coefficient	±100ppm/°C (RVS), ±250ppm/°C (RVG)
Residual Resistance	Less than 500Ω, 5Ω max. 500Ω and up, less than 1% of nominal resistance.
Taper	Linear
Power Rating	1/3W (at 70°C) Derated to 0 watts at 125°C
Max. Working Voltage	100 VDC
Torque	.27 to 2.8 in. oz
Terminal Strength	12.35 oz. when the force is applied in the direction of the axes of the terminal.
Effective Rotation	Elect. 180° Mech. 200°±10°

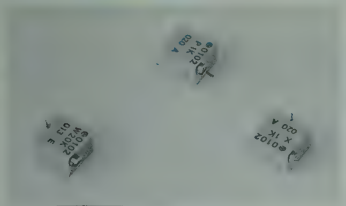
PREFERRED TYPES

PART NUMBER	TOL. (%)
RVG (CERMET)	
★RVG0707H100A-10-(000)M	±20
★RVG0707V100A-10-(000)M	±20
RVG0707V101A-10-(000)M	±20
RVS (SPECIAL CERMET)	
★RVS0707H100A-03-(000)M	±20
★RVS0707V100A-03-(000)M	±20
RVS0707V101A-03-(000)M	±20

★Available as standard through authorized Murata Erie Distributors.

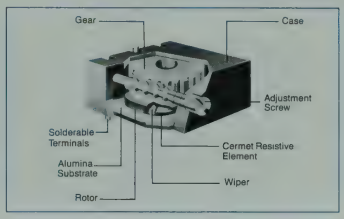
MINIATURE
12 TURNED, SEALED, SURFACE MOUNT
1/4" SQUARE

POT0102

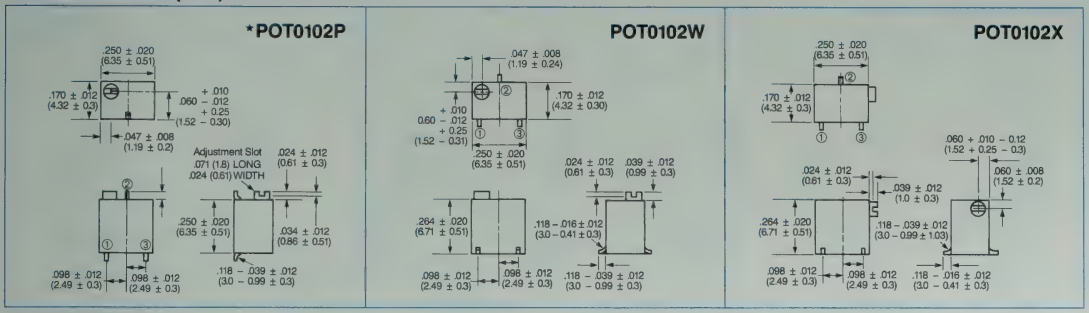


FEATURES:

- Miniature size—.250" × .250" × .169"
- 12-turn
- Will withstand industrial cleaning processes
- Cermet resistance element
- For surface mount applications
- Reflow solderable



DIMENSIONS in. (mm)



SPECIFICATIONS

Resistance Range	10 ohms to 1 Megohm
Tolerance	±10%
Temperature Coefficient	±100ppm/°C
Residual Resistance	2 ohms max.
Power Rating	0.25W at 85°C. Derated to 0W at +125°C
Working Voltage	200 VDC max.
Operating Temp. Range	−55°C to +125°C
Contact Resistance Variation	3% or 3 ohms max., whichever is greater
Dielectric Strength	600 VAC
Insulation Resistance	1,000 Megohms min. at 500 VDC
Torque	3.0 in.-oz. max.
Effective Electrical Adjust.	12 turns, ±2 turns

ENVIRONMENTAL SPECIFICATIONS

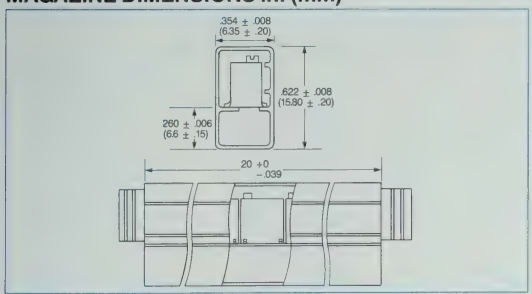
Thermal Shock	±1% total resistance change. ±1% setting stability change.
Humidity	±2% total resistance change. 100 Megohms min. insulation resistance.
Shock	100 G±1% total resistance change. ±1% setting stability change.
Vibration	20 G±1% total resistance change. ±1% setting stability change.
Load Life	1,000 hrs. at 70°C and 0.25W. ±2% total resistance change. ±2% setting stability change.
Low Temperature Operation	24 hrs. at −55°C. ±1% total resistance change. ±1% setting stability change.
High Temperature Exposure	24 hrs. at +125°C. ±2% total resistance change. ±1% setting stability change.
Rotational Life	200 cycles without discontinuity.

PART NUMBERING SYSTEM

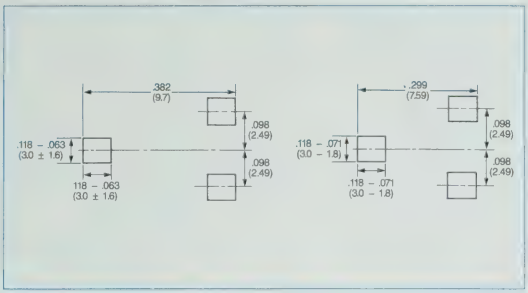
POT0102 P — 1 — 100 K — M2

MODEL	ADJ. POSITION	VARIATION	RESISTANCE CODE	RESISTANCE TOLERANCE	PACKAGING
	P=Side W=Top X=Side	STD=1		K=±10% (STD)	M2=Magazine (STD)

MAGAZINE DIMENSIONS in. (mm)



STANDARD LAND PATTERNS



★STANDARD RESISTANCES

RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE
10	100	100	101	1K	102	10K	103	50K	503	250K	254
20	200	200	201	2K	202	20K	203	100K	104	500K	504
50	500	500	501	5K	502	25K	253	200K	204	1M	105

★Available as standard through authorized Murata Erie Distributors.

MICROMINIATURE TRIMMING POTENTIOMETERS

1/3 Watt Cermet

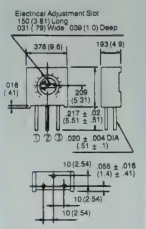
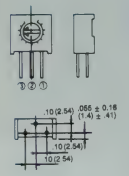
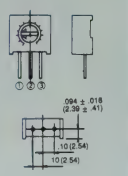
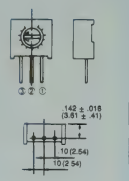
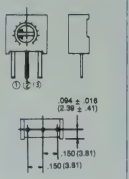
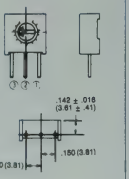
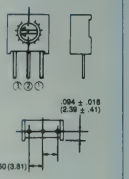
POT3104

FEATURES

- Very low-cost
- Standard ⅜" square configuration
- Low temperature coefficient — ±100 ppm/°C from -55°C to +125°C
- Sealed construction. Will withstand industrial cleaning processes.
- Cermet resistance element

DIMENSIONS: in. (mm)

Tolerance: ± .02

CODE H	X	W	C	S	B	J
						

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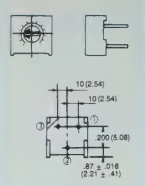
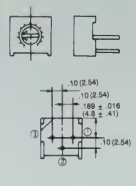
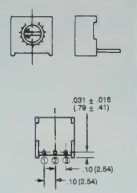
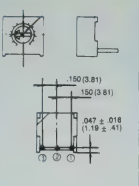
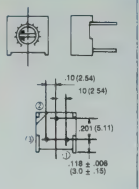
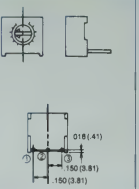
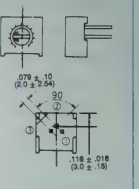
						

PART NUMBERING SYSTEM

POT3104	H	—	1	—	100	K
MODEL	CONFIGURATION		VARIATION STD=-1		RESISTANCE CODE	RESISTANCE TOLERANCE K=±10% (STD)

STANDARD RESISTANCES

RES. (ohms)	CODE	RES. (ohms)	CODE
10	100	10K	103
20	200	20K	203
50	500	25K	253
100	101	50K	503
200	201	100K	104
500	501	200K	204
1K	102	250K	254
2K	202	500K	504
5K	502	1M	105
		2M	205

SPECIFICATIONS

Resistance Range	10 ohms to 2 Megohms
Tolerance	±10%
Temperature Coefficient	±100ppm/°C
Residual Resistance	2 ohms max.
Power Rating	0.5W at 70°C. Derated to 0W at +125°C
Working Voltage	300 VDC max.
Operating Temp. Range	-55°C to +125°C
Contact Resistance Variation	1% or 1 ohms max. whichever is greater
Dielectric Strength	900 VAC, room conditions
Insulation Resistance	1,000 Megohms min. at 500 VDC
Torque	5 in.-oz. max.
Effective Electrical Rotation	280° nominal

PREFERRED TYPES

PART NO.	TOL. (%)	CONFIG.
POT3104H-1-(000)K	±10	H
POT3104X-1-(000)K	±10	X
POT3104W-1-(000)K	±10	W
POT3104C-1-(000)K	±10	C
POT3104S-1-(000)K	±10	S
POT3104B-1-(000)K	±10	B
POT3104J-1-(000)K	±10	J
POT3104F-1-(000)K	±10	F
POT3104P-1-(000)K	±10	P
POT3104T-1-(000)K	±10	T
POT3104R-1-(000)K	±10	R
POT3104Y-1-(000)K	±10	Y
POT3104M-1-(000)K	±10	M
POT3104K-1-(000)K	±10	K

NOTE: ALL OHMIC VALUES STANDARD DISTRIBUTOR ITEMS. REPLACE (000) WITH 3 DIGIT OHMIC CODE. EX. 103 = 10K OHMS.

All values are standard through authorized Murata Erie Distributors.

MINIATURE SINGLE-TURN SEALED TRIMMING POTENTIOMETERS

1/4" Diameter

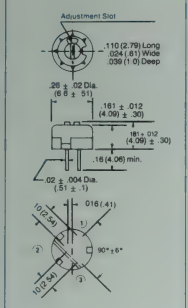
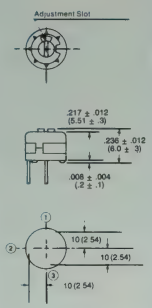
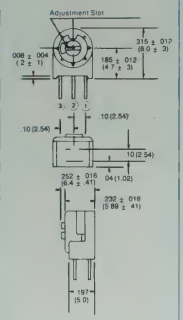
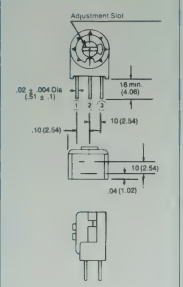
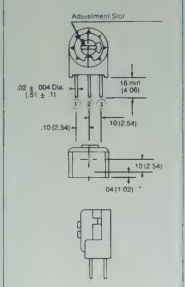
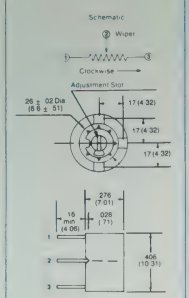
POT3321

FEATURES

- Flame retardant rotor meets UL94V-0 requirements
- Extremely small size—.260" D. x .181"
- Wide variety of terminal configurations
- Cermet element
- Sealed to withstand wave soldering and immersion cleaning processes.

DIMENSIONS: in. (mm)

Tolerance: ± .01 except where noted

POT3321H	POT3321P	POT3321N	POT3321T	POT3321S	POT3321F
					

PART NUMBERING SYSTEM

POT3321 H — 1 — 100 M

MODEL	ADJ. POSITION	VARIATION	RESISTANCE CODE	RESISTANCE TOLERANCE
	H=Top P=Top N=Side A=Side S=Side T=Side F=Bottom	1 = Standard 2 = For 10% Tolerance		M = ±20% (K = ±10% also available)

STANDARD RESISTANCES

RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE
10	100	500	501	10K	103	200K	204
20	200	1K	102	20K	203	500K	504
50	500	2K	202	50K	503	1M	105
100	101	5K	502	100K	104	2M	205
200	201					5M	505

SPECIFICATIONS

Resistance Range	10 ohms to 5 Megohms
Tolerance	± 20% (± 10% available)
Temperature Coefficient	±100ppm/°C
Residual Resistance	2 ohms max.
Power Rating	0.5W at 70°C. Derated to 0W at +150°C
Working Voltage	300 VDC max.
Operating Temp. Range	-55°C to +150°C
Contact Resistance Variation	3% or 3 ohms max. whichever is greater
Dielectric Strength	600 VAC, room conditions
Insulation Resistance	1000 Megohms min. at 500 VDC
Torque	2.8 in.-oz. max.
Effective Electrical Rotation	230° nominal

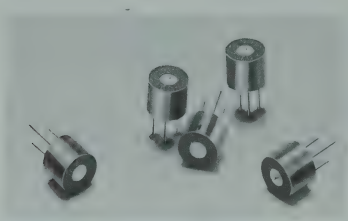
PREFERRED VALUES

PART NO.	TOL. (%)	CONFIG.
POT3321H-1-(000)M	±20	H
POT3321P-1-(000)M	±20	P
POT3321N-1-(000)M	±20	N
POT3321T-1-(000)M	±20	T
POT3321S-1-(000)M	±20	S
POT3321F-1-(000)M	±20	F

All values are standard through authorized Murata Erie Distributors.

MINIATURE 4-TURN, SEALED TRIMMING POTENTIOMETERS
5/16" Diameter

POT1102

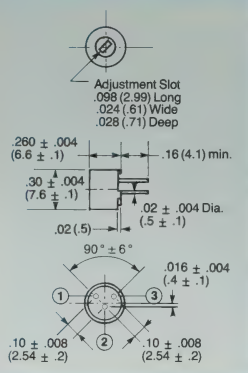


FEATURES
- **Unique planetary drive produces the precise setting capability of a multi-turn unit in a small single-turn package.**
- **Just .300D x .260**
- **Sealed to withstand wave soldering and immersion cleaning process.**

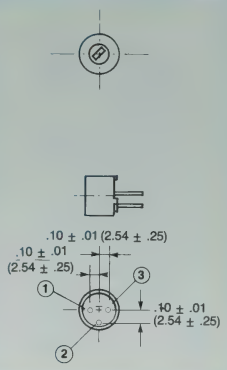
DIMENSIONS: in. (mm)

Tolerance: ± .012 except where noted

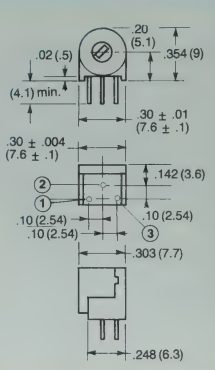
POT1102H



POT1102P



POT1102T



POT1102S

PART NUMBERING SYSTEM

POT1102 H — 1 — 100 K

- **MODEL**
- **ADJ. POSITION**
  H=Top
  P=Top
  T=Side
  S=Side
- **VARIATION**
  1 = STD
- **RESISTANCE CODE**
- **RESISTANCE TOLERANCE**
  K=±10% (STD)

STANDARD RESISTANCES

RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE
10	100	500	501	10K	103	200K	204
20	200	1K	102	20K	203	500K	504
50	500	2K	202	50K	503	1M	105
100	101	5K	502	100K	104	2M	205
200	201						

SPECIFICATIONS

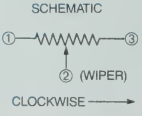
Resistance Range	10 ohms to 2 Megohms
Tolerance	±10%
Temperature Coefficient	±100ppm/°C
Residual Resistance	1% or 2 ohms max. whichever is greater
Power Rating	0.5W at 70°C. Derated to 0W at +125°C
Working Voltage	300 VDC max.
Operating Temp. Range	-55°C to +125°C
Contact Resistance Variation	3% or 3 ohms max. whichever is greater
Dielectric Strength	600 VAC, room conditions
Insulation Resistance	1,000 Megohms min. at 500 VDC.
Torque	2.08 in.-oz. max.
Effective Electrical Adjust.	4 turns nominal

All values are standard through authorized Murata Erie Distributors.

PREFERRED TYPES

PART NO.	TOL. (%)	CONFIG.
POT1102H-1-(000)K	±10	H
POT1102P-1-(000)K	±10	P
POT1102S-1-(000)K	±10	S
POT1102T-1-(000)K	±10	T

SCHEMATIC

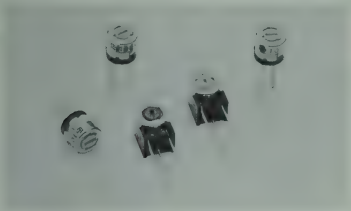


MINIATURE, SINGLE-TURN TRIMMING POTENTIOMETERS

3/16" Diameter, 1/4 Watt Cermet

murata ERIE

POT1103

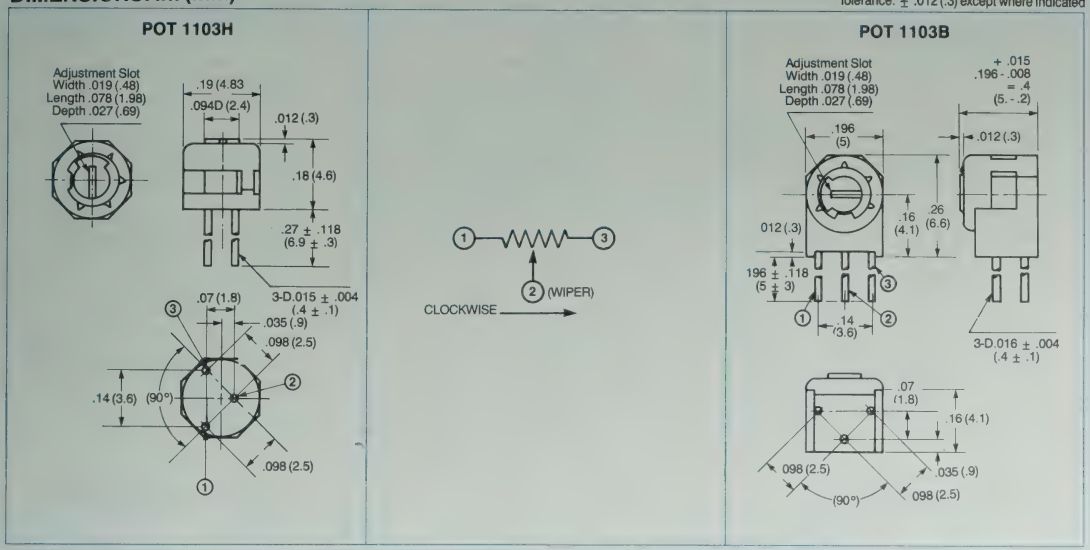


FEATURES

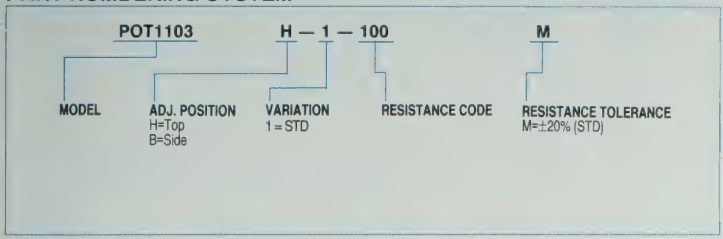
- Extremely small size — .189" Dia. x .181"
- Flame retardant rotor meets UL94V-O requirements.
- Sealed to withstand wave soldering and immersion cleaning processes.

DIMENSIONS: in. (mm)

Tolerance: ± .012 (.3) except where indicated



PART NUMBERING SYSTEM



STANDARD RESISTANCES

RES. (ohms)	CODE
10	100
20	200
50	500
100	101
200	201
500	501
1K	102
2K	202
5K	502
10K	103
20K	203
50K	503
100K	104
200K	204
500K	504
1M	105
2M	205

SPECIFICATIONS

Resistance Range	10Ω to 2MΩ
Tolerance	±20%
Temperature Coefficient	± 100ppm/°C (R > 50Ω)
Residual Resistance	1% or 2Ω max., whichever is greater
Power Rating	0.25W at 70°. 0W at +125°C
Working Voltage	200 VDC max.
Operating Temp. Range	-55°C to +125°C
Contact Resistance Variation	3% or 3Ω
Dielectric Strength	500 VAC
Insulation Resistance	1,000MΩ min. at 500 VDC.
Torque	1.39 oz. in. max.

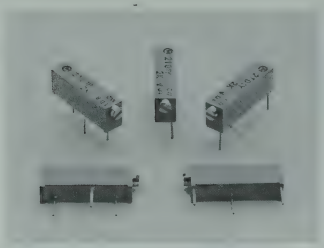
All values are standard through authorized Murata Erie Distributors.

PREFERRED TYPES

PART NO.	TOL. (%)	CONFIG.
POT1103H-1-(000)M	±20	H
POT1103B-1-(000)M	±20	B

15-TURN, SEALED TRIMMING POTENTIOMETERS
3/4" Rectangular

POT2103

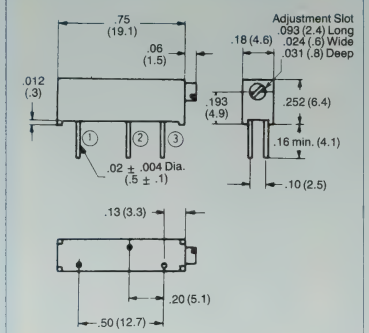


FEATURES
- **Small size — .181" x .252" x .752"**
- **15-Turn**
- **Sealed to MIL-R-22097 standards. Will withstand industrial cleaning processes.**
- **Cermet resistance element**

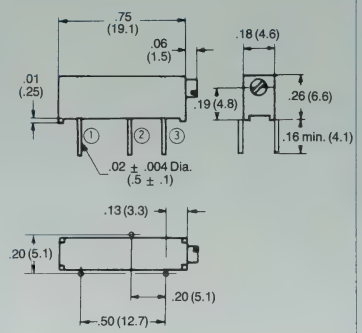
DIMENSIONS: in. (mm)

Tolerance: ± .012 except where noted

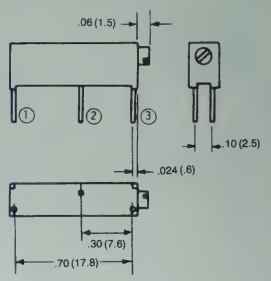
POT2103P



POT2103W



POT2103Y



PART NUMBERING SYSTEM

POT2103 Y — 1 — 100 K

MODEL	PIN CONFIGURATION	VARIATION	RESISTANCE CODE	RESISTANCE TOLERANCE
	P=Printed Circuit Pins Y=Printed Circuit Pins W=Printed Circuit Pins	1 = STD		K=±10% (STD)

STANDARD RESISTANCES

RES. (ohms)	CODE
10	100
20	200
50	500
100	101
200	201
500	501
1K	102
2K	202
5K	502
10K	103
20K	203
50K	503
100K	104
200K	204
500K	504
1M	105
2M	205

SPECIFICATIONS

Resistance Range	10 ohms to 2 Megohms
Tolerance	±10%
Temperature Coefficient	±100ppm/°C
Residual Resistance	2 ohms max.
Power Rating	0.75W at 70°C. Derated to 0W at +125°C
Working Voltage	300 VDC max.
Operating Temp. Range	-55°C to +125°C
Contact Resistance Variation	3% or 3 ohms max. whichever is greater
Dielectric Strength	1,000 VAC, room conditions
Insulation Resistance	1,000 Megohms min. at 500 VDC.
Torque	2.8 in.-oz. max.
Effective Electrical Adjust.	15 turns nominal

All values are standard through authorized Murata Erie Distributors.

PREFERRED VALUES

PART NO.	TOL. (%)	CONFIG.
POT2103P-1-(000)K	±10	P
POT2103W-1-(000)K	±10	W
POT2103Y-1-(000)K	±10	Y

22-TURN, SEALED TRIMMING POTENTIOMETERS
1 1/4" Rectangular

POT2102

FEATURES

- 22-turn mechanism provides extremely fine adjustment capability
- High power dissipation: 1.0W at 70°C
- Sealed to withstand wave soldering and immersion cleaning

PART NUMBERING SYSTEM

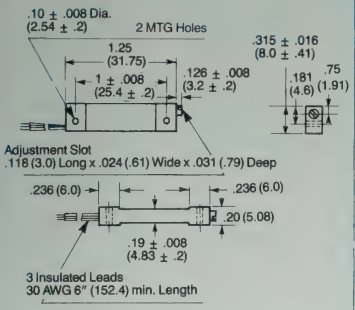
POT2102 L — 1 — 100 K

Model	Pin Configuration	Variation	Resistance Code	Resistance Tolerance
	L=Standard Insulated Lead Wire S=Printed Circuit Pins Y=Printed Circuit Pins	1 = STD		K=±10% (STD)

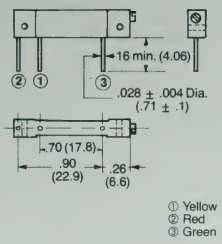
DIMENSIONS: in. (mm)

Tolerance: ± .012 except where noted

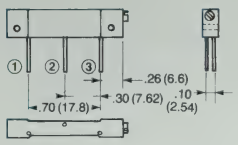
POT2102L



POT2102S



POT2102Y



STANDARD RESISTANCES

RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE	RES. (ohms)	CODE
10	100	500	501	10K	103	500K	504
20	200	1K	102	20K	203	750K	754
50	500	2K	202	50K	503	1M	105
100	101	5K	502	100K	104	2M	205
200	201			200K	204		

SPECIFICATIONS

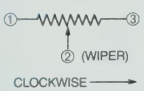
Resistance Range	10 ohms to 2 Megohms
Tolerance	±10%
Temperature Coefficient	±100ppm/°C
Residual Resistance	2 ohms max.
Power Rating	1W at 70°C. Derated to 0W at +150°C
Max. Working Voltage	300 VDC max.
Operating Temp. Range	-55°C to +150°C
Contact Resistance Variation	3% or 3 ohms max. whichever is greater
Dielectric Strength	1,000 VAC, room conditions
Insulation Resistance	1,000 Megohms min. at 500 VDC
Torque	2.8 in.-oz. max
Effective Electrical Adjust.	22 turns nominal

All values are standard through authorized Murata Erie Distributors.

PREFERRED VALUES

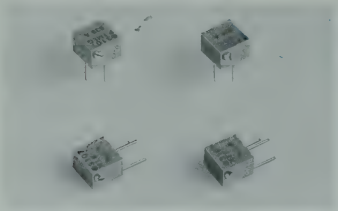
PART NO.	TOL. (%)	CONFIG.
POT2102L-1-(000)K	±10	L
POT2102S-1-(000)K	±10	S
POT2102Y-1-(000)K	±10	Y

SCHEMATIC



MINIATURE 12-TURN, SEALED TRIMMING POTENTIOMETERS
1/4" Square

POT3107

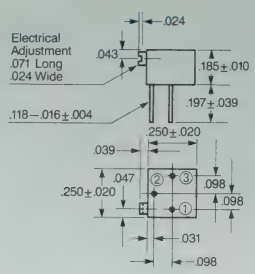


FEATURES
- Miniature size—.250" × .250" × .169"
- 12-Turn
- Sealed to MIL-R-22097 Standards. Will withstand industrial cleaning processes.
- Cermet Resistance Element

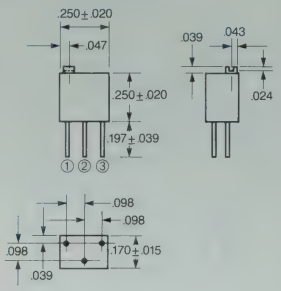
DIMENSIONS: in.

Tolerance: ±.012 except where noted

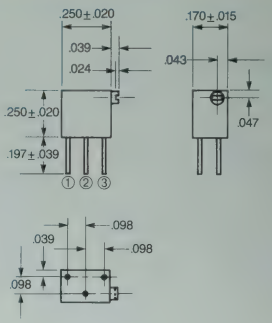
POT3107P



POT3107W



POT3107X



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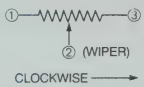


PART NUMBERING SYSTEM

POT3107 P — 1 — 100 K

MODEL	ADJ. POSITION	VARIATION	RESISTANCE CODE	RESISTANCE TOLERANCE
	P=Side W=Top X=Side	STD=1		K=±10% (STD)

STANDARD RESISTANCES

RES. (ohms)	CODE	RES. (ohms)	CODE
10	100	20K	203
20	200	50K	503
50	500	100K	104
100	101	200K	204
200	201		
500	501	500K	504
1K	102	1M	105
2K	202		
5K	502		
10K	103		

SPECIFICATIONS

Resistance Range	10 ohms to 1 Megohms
Tolerance	±10%
Temperature Coefficient	±100ppm/°C
Residual Resistance	1% or 2 ohms max. whichever is greater
Power Rating	.25W at 70°C. Derated to 0W at +125°C
Working Voltage	200 VDC max.
Operating Temp. Range	−55°C to +125°C
Contact Resistance Variation	3% or 3 ohms max. whichever is greater
Dielectric Strength	600 VAC, room conditions
Insulation Resistance	1,000 Megohms min. at 500 VDC
Torque	3.0 in. oz max.
Effective Electrical Adjust.	12 turns nominal

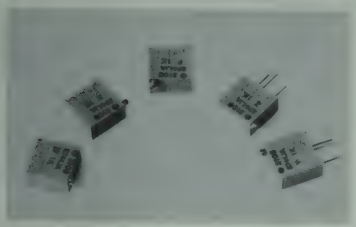
PREFERRED TYPES

PART NO.	TOL. (%)	CONFIG.
POT3107P-1-(000)K	±10	P
POT3107X-1-(000)K	±10	X
POT3107W-1-(000)K	±10	Y

All values are standard through authorized Murata Erie Distributors.

MINIATURE 25-TURN, SEALED TRIMMING POTENTIOMETERS
3/8" Square

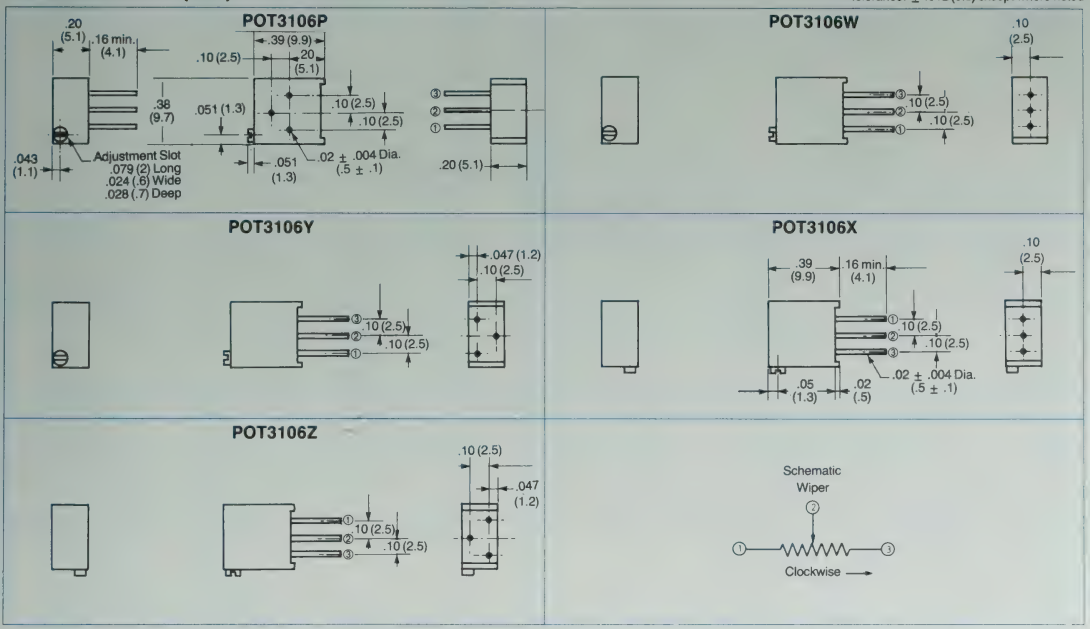
POT3106



FEATURES
- Low profile-.374" x .394" x .200"
- 25-turn
- Sealed to MIL-R-22097 Standards. Will withstand industrial cleaning processes.
- Cermet resistance element

DIMENSIONS: in. (mm)

Tolerance: ± .012 (0.3) except where noted



PART NUMBERING SYSTEM

POT3106 — P — 1 — 100 — K

MODEL	ADJ. POSITION	VARIATION	RESISTANCE CODE	RESISTANCE TOLERANCE
	P=Side X=Side W=Top Z=Side Y=Top	1 = STD		K=±10% (STD)

STANDARD RESISTANCES

RES. (ohms)	CODE	RES. (ohms)	CODE
10	100	20K	203
20	200	25K	253
50	500	50K	503
100	101	100K	104
200	201	200K	204
500	501	250K	254
1K	102	500K	504
2K	202	1M	105
5K	502	2M	205
10K	103		

SPECIFICATIONS

Resistance Range	10 ohms to 2 Megohms
Tolerance	±10%
Temperature Coefficient	±100ppm/°C
Residual Resistance	2 ohms max
Power Rating	0.5W at 70°C. Derated to 0W at +125°C
Working Voltage	300 VDC max.
Operating Temp. Range	-55°C to +125°C
Contact Resistance Variation	3% or 3 ohms max., whichever is greater
Dielectric Strength	1,000 VAC, room condmions
Insulation Resistance	1,000 Megohms min. at 500 VDC
Torque	2.08 in. oz. max.
Effective Electrical Adjust.	25 turns nominal

All values are standard through authorized Murata Erie Distributors.

PREFERRED TYPES

PART NO.	TOL. (%)	CONFIG.
POT3106P-1-(000)K	±10	P
POT3106W-1-(000)K	±10	W
POT3106X-1-(000)K	±10	X
POT3106Y-1-(000)K	±10	Y
POT3106Z-1-(000)K	±10	Z

LQN, LQH

A result of Murata Erie's new coil winding technology, these extremely small chip inductors are designed to permit high current capacitance, as well as superior frequency characteristics. Available in a wide range of inductance values ranging from .01μH to 2.2mH. Using Palladium Silver (Ag-Pd) material for electrodes, these chip inductors can be either flow soldered or reflow soldered. Their square shape permits utilization in any type of packaging for automated processes.

FEATURES

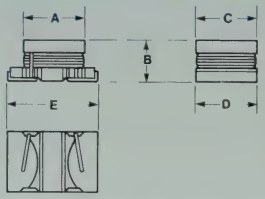
- Miniature size
- Available in ferrite and ceramic cores
- Tape packaged for universal mounting equipment (per EIAJ-RC-1009B)
- Wide standard inductance range—10nH to 2200μH
- High Q factor at frequencies to 100MHz for ferrite cores and to 1GHz for ceramic cores

PACKAGING

All products are taped in plastic tape and supplied on a reel that conforms with EIAJ-RC-1009B. Standard quantities: LQH1N/IC—2000 pcs., LQN2A—2500 pcs. per reel, LQH3N/3C—2000 pcs. per reel, LQH4N—500 pcs. per reel.

DIMENSIONS: in. (mm)

LQH1N
LQH3C
LQH3N
LQN2A
LQH4N/LQN4N



	LQH1N	LQN2A	LQH3N LQH3C	LQH4N LQN4N
A	2.3±0.2	2.5±0.2	2.5±0.2	3.6±0.2
B	1.8±0.2	1.6±0.2	2.0±0.2	2.6±0.2
C	1.6±0.2	2.5±0.2	2.5±0.2	3.2±0.2
D	1.6±0.2	2.5±0.2	2.5±0.3	3.2±0.3
E	3.2±0.3	3.2±0.3	3.2±0.3	4.5±0.3

ELECTRICAL CHARACTERISTICS (PREFERRED VALUES)

Part Number	Nominal*1 Inductance min.*4	Nominal*1 Inductance max.	Tolerance*3 J	Tolerance*3 K	Tolerance*3 M	Q (min.)	DC*4 Resistance (μ) max.	Self*4 Resonance Freq. (MHz) min.)	Allowable*4 Current (mA)
LQH1N○○○□04	0.15μH	8.2μH			•	20	0.39±40%	250	160
	10μH	100μH		•		30	2.5±30%	20	60
*1 *2 LQH3C○○○□04	1.0μH	8.2μH			•	—	0.09±30%	96	800
	10μH	330μH		•		—	0.44±30%	26	300
LQN2A○○○□03	10nH	82nH			•	30	0.25	1000	100
	100nH	220nH		•		30	0.40	400	100
LQH3N○○○□92	0.1μH	0.82μH			•	20	0.25	200	120
LQH3N○○○□04	1.0μH	8.2μH			•	20	0.5	100	100
	10μH	330μH	▲	•		35	1.8	20	50
LQH4N○○○□-TA	10μH	1.5 mH	▲	•		35	0.56	23	400
LQN4N○○○□-TA	1.8 mH	2.2 mH	▲	•		40	45	1.5	35

*1 ··· Inductance code is shown in ○○○ : 1.2 μH→1R2, 10μH→100, 100μH→101
*2 ··· Tolerance code is shown in "□" : ±5%→J, ±10%→K, ±20%→M
*3 ··· • : Standard. ▲ : Semi Standard.
*4 ··· DC resistance, self-resonant frequency and allowable current are shown with the minimum value of inductance.

PART NUMBERING SYSTEM

LQH 3 C 102 K 04 M00

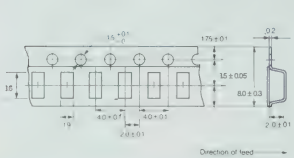
TYPE	SIZE	CORE MATERIAL	INDUCTANCE CODE	TOLERANCE	ELECTRODE MATERIAL	MARKING
LQH=Epoxy Coated LQN=Non-Coated	1 2 3	A: Alumina Core N: Ferrite Core C: Ferrite Core for choke coil	1R0=1.0μH 100=10μH 331=330μH 82N=82nH	K=±10% M=±20%	03: NI Barrier 04: NI Alloy Metalization 92: Palladium Silver	M01=Marked M00=Not Marked

LQH 4 N 102 K – TA

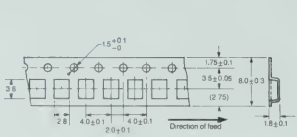
TYPE	SIZE	MATERIAL	INDUCTANCE CODE	TOLERANCE	PACKAGING
LQN=Non Coated LQH=Epoxy Coated on Wire	4	N: Ferrite	1R0=1.0μH 100=10μH 331=330μH 102=1000μH 1R2=1.2μH	K=±10% M=±20%	TA=Tape & Reel

DIMENSIONS OF PLASTIC TAPE: mm

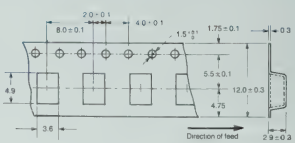
LQH1N/1C



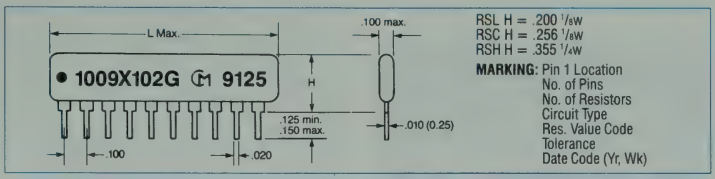
LQH3N/3C



LQH4N



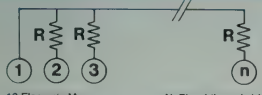
All values are available as standard through authorized Murata Erie Distributors.



RSL H = .200 1/8W
RSC H = .256 1/8W
RSH H = .355 1/4W

MARKING: Pin 1 Location
No. of Pins
No. of Resistors
Circuit Type
Res. Value Code
Tolerance
Date Code (Yr, Wk)

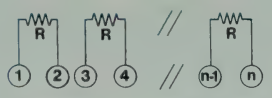
X-CIRCUIT—PARALLEL



13 Elements Max. N=Pins 4 through 14

No. Pins	No. of Elements	L
4	3	.398
5	4	.496
*6	5	.594
7	6	.693
*8	7	.795
9	8	.894
*10	9	.996
11	10	1.094
12	11	1.201
13	12	1.299
14	13	1.398

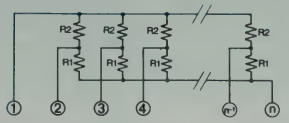
Y-CIRCUIT—DISCRETE



7 Elements Max. N=6, 8, 10, 12 and 14 Pins

No. Pins	No. of Elements	L
*6	3	.594
*8	4	.795
*10	5	.996
12	6	1.201
14	7	1.398

Z-CIRCUIT—DOUBLE TERMINATION



16 Elements Max. N = 6, 7, 8, 9 and 10 pins

No. Pins	No. of Elements	L
6	8	.594
7	10	.693
8	12	.795
9	14	.894
10	16	.996

PART NUMBERING SYSTEM

RSL 6 X 102 G

Single In-Line Resistor Network
RSL = 1/8 W
RSC = 1/8 W (Y & L circuits only)
RSH = 1/4 W

No. of Pins

Circuit Type
X = Parallel
Y = Discrete
Z = Double Termination

Resistance Code
First two digits are significant. Last indicates number of zeros.

Resistance Tolerance
F = ±1%
G = ±2%
J = ±5%

TYPICAL RESISTANCE COMBINATIONS*

R_1/R_2	R_1/R_2	R_1/R_2
160/240	330/390	330/390
180/390	330/470	1.5K/3.3K
220/330	330/680	3K/6.2K

***Note 1:** In addition to $R_1=R_2$ resistance combinations, the typical resistor combinations shown in the chart are available.

2: RC networks are also available. Contact Murata Erie for technical details.

SPECIFICATIONS

Electrical

Temp. Range: −55°C to +125°C

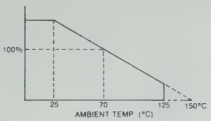
Resistance Range: 22Ω to 1MΩ

Resistance Tolerance: ±1% (F), ±2% (G), ±5% (J)

Temp. Coefficient: ±200 ppm/°C max. (±100 ppm/°C max. on special order)

Power: 100% at 70°C
Maximum ambient temperature at 0 watt is 125°C

Power Derating Characteristics:



Mechanical

Substrate Material: Alumina
Resistor Material: Cermet, thick film
Lead Pull Strength: 2 lbs.
Coating: Meets UL94V-0 standards

Note: Other types and custom designs are also available.

COMMON SIZES/TOLERANCE

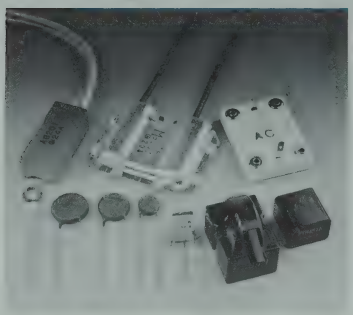
Part No.	Tol. (%)	Part No.	Tol. (%)
RSL (Low Profile) 1/4 W		**RSH 1/4 W**	
*RSL6X(000)G	±2	*RSH6X(000)G	±2
*RSL8X(000)G	±2	*RSH8X(000)G	±2
*RSL10X(000)G	±2	*RSH10X(000)G	±2
RSL6X(000)J	±5	RSH6X(000)J	±5
RSL8X(000)J	±5	RSH8X(000)J	±5
RSL10X(000)J	±5	RSH10X(000)J	±5
*RSL6Y(000)G	±2	**RSC 1/8 W**	
*RSL8Y(000)G	±2	*RSC6Y(000)G	±2
*RSL10Y(000)G	±2	*RSC8Y(000)G	±2
RSL6Y(000)J	±5	*RSC10Y(000)G	±2
RSL8Y(000)J	±5	RSC6Y(000)J	±5
RSL10Y(000)J	±5	RSC8Y(000)J	±5
		RSC10Y(000)J	±5

★PREFERRED VALUES

Res. (ohms)	Code	Res. (ohms)	Code	Res. (ohms)	Code	Res. (ohms)	Code	Res. (ohms)	Code	Res. (ohms)	Code	Res. (ohms)	Code
22	220	110	111	510	511	2400	242	11000	113	51000	513	240000	244
24	240	120	121	560	561	2700	272	12000	123	56000	563	270000	274
27	270	130	131	620	621	3000	302	13000	133	62000	623	300000	304
30	300	150	151	680	681	3300	332	15000	153	68000	683	330000	334
33	330	160	161	750	751	3600	362	16000	163	75000	753	360000	364
36	360	180	181	820	821	3900	392	18000	183	82000	823	390000	394
39	390	200	201	910	911	4300	432	20000	203	91000	913	430000	434
43	430	220	221	1000	102	4700	472	22000	223	100000	104	470000	474
47	470	240	241	1100	112	5100	512	24000	243	110000	114	510000	514
51	510	270	271	1200	122	5600	562	27000	273	120000	124	560000	564
56	560	300	301	1300	132	6200	622	30000	303	130000	134	620000	624
62	620	330	331	1500	152	6800	682	33000	333	150000	154	680000	684
68	680	360	361	1600	162	7500	752	36000	363	160000	164	750000	754
75	750	390	391	1800	182	8200	822	39000	393	180000	184	820000	824
82	820	430	431	2000	202	9100	912	43000	433	200000	204	910000	914
91	910	470	471	2200	222	10000	103	47000	473	220000	224	1000000	105
100	101												

★Available as standard through authorized Murata Erie Distributors.

POSISTORS®
HIGH POWER PTC THERMISTORS



Murata Erie Posistors are basically positive temperature coefficient thermistors with a very well defined resistance-temperature "knee" and the unique ability to "switch" relatively large amounts of power. They may also be used as self-regulating heating devices at useful power levels and as control devices for high power heaters. Applications include temperature sensing, over temperature and over current protection and motor starting to name a few.

Products utilizing Posistors are extremely safe and reliable and offer all of the design, manufacturing, repair and sales advantages of solid state technology.

FEATURES

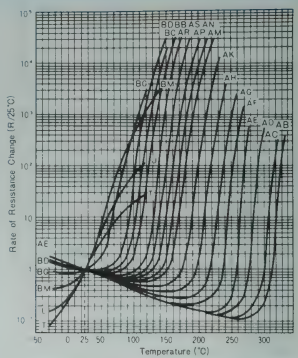
- **Compact**
- **Reduced component count**
- **Extremely reliable**
- **"Stepless" temperature control**
- **Simple repair or replacement**
- **Long term reliability**
- **Shock and vibration immunity**
- **Nonflammable case and insulation available**
- **No electrical or acoustical noise**
- **No electrical contacts**

VARIETY OF HEATERS

AIR HEATERS

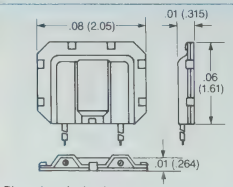
COMPACT HEATERS

RESISTANCE-TEMPERATURE CHARACTERISTICS



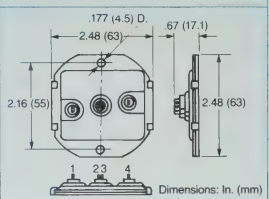
HIGH POWER FLAT HEATERS -PTH497

PTH497A



Dimensions: In. (mm)

PTH497B

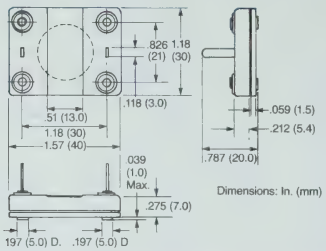


Dimensions: In. (mm)

UL RECOGNIZED (E59464)

TYPE	MAX. OPERATING VOLTAGE			POWER RANGE	
PTH497A10□101Q140	140V			50W	
PTH497B10□501Q140	140V			170W	
□ - temperature characteristics	BF	BB	AS	AM	AK
	60°C	100°C	130°C	160°C	180°C

HIGH TEMPERATURE HEATERS - PTH521



Dimensions: In. (mm)

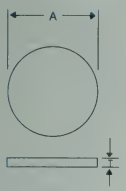
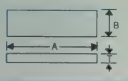
PART NUMBER	CURIE POINT	NOMINAL SURFACE TEMP.	MAX. VOLTAGE
PTH521A01AB201T260	AB (320°C)	320°C	260 Vrms
PTH521A01AC201T260*	AC (300°C)	305°C	260 Vrms
PTH521A01AD201T260	AD (280°C)	285°C	260 Vrms
PTH521A01AE201T260	AE (260°C)	270°C	260 Vrms
PTH521A01AF201T260	AF (240°C)	255°C	260 Vrms

*UL approved (E59464)

POSISTORS®
POSITIVE TEMPERATURE COEFFICIENT (PTC) THERMISTORS

PELLET HEATERS – PTH420A

All Posistors are fabricated from basic pellets in a variety of configurations. To meet specific application requirements for a positive temperature coefficient Posistor for heating, circuit protection or temperature/current regulation, Murata Erie offers a variety of pellets. The units illustrated are only a sampling of those available for custom applications. Our application engineers will provide product design assistance whenever required.

Type	Part Number	Dimensions (mm) A±0.5	B±0.5	T±0.2	Rated Voltage	Curie Point Temperature (°C)	Resistance 25°C (Ω)
	PTH420A122AR131N260	6	—	2.5	220	120	130±30%
	PTH420A198AG701Q265	8	—	3.2	220	220	700-1500
	PTH420A184AN132N260	11	—	2.2	220	150	700-2000
	PTH420A127BC102M260	12	—	2.2	220	90	1000±30%
	PTH420A008BH651Q260	17	—	2.5	220	40	200-1200
	PTH420A208BD220N080	6	—	1.5	12/24	80	22±30%
	PTH420A209BD7R0N080	8	—	1.0	12/24	80	7±30%
	PTH420A204AK9R0N035	12	—	1.0	12/24	180	9±30%
	PTH420A001AR1R7N020	14	—	1.0	12	120	1.7±30%
	PTH420A036AR1R0N020	19.5	—	1.0	12	120	1.0±30%
	PTH420A168AL1R0P030	20.8	—	1.2	12/24	170	1.5±35%
	PTH420A193AG102T260	8.0	5.5	2.6	220	220	1000-6000
	PTH420A205AK701N265	15.0	5.0	2.0	220	180	490-910
	PTH420A087AF401T260	25.0	9.0	2.5	220	240	400-2400
	PTH420A141AG100N035	14.0	7.0	2.0	12/24	220	7-13

NOTE: Custom elements are available. Contact Murata Erie for information.

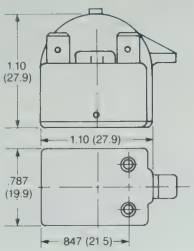
MOTOR STARTING – U.L. FILE NO. E60216

Murata Erie Posistors are designed to provide a smooth, solid state electronic starting device for single-phase motors utilizing a split-phase starting winding or for PSC motors as a direct replacement for starting capacitors and switches.

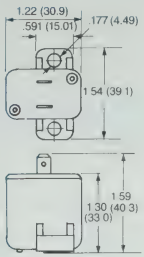
Type	Resistance (Ω)	Inrush Current (A)	Max. Voltage (V)
PTH490	3.3 - 22	7 - 12	160 - 300
PTH491	3.3 - 47	7 - 15	160 - 500

DIMENSIONS: in. (mm)

PTH490

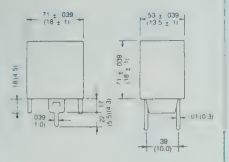


PTH491

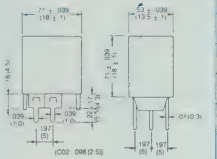


DEGAUSSING FOR COLOR TV AND DATA TERMINAL DISPLAYS

PTH451A



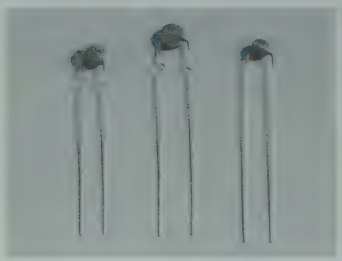
PTH451C



Part Number	Rated Voltage (V)	Min. Inrush Current (Ap-p)	Max. Steady State Current (mAp-p)	Degauss Coil R (Ω)
PTH451A100BG5R0M140	100/120	36Ap-p min.	70mAp-p max	1
PTH451A103BG8R0M140	100/120	16Ap-p min.	15mAp-p max.	6
PTH451A102BF140M270	220/240	25Ap-p min.	40mAp-p max.	10
PTH451A102BG180N270	220/240	25Ap-p min.	35mAp-p max.	8
PTH451C260BF5R0M140	100/120	35Ap-p min.	15mAp-p max.	1
PTH451C263BG8R0M140	100/120	16Ap-p min.	7mAp-p max.	9
PTH451C262BF140M270	220/240	25Ap-p min.	25mAp-p max.	10
PTH451C262BG180N270	220/240	15Ap-p min.	15mAp-p max.	13

DIMENSIONS in. (mm)

NTC THERMISTORS



The NTH5D Series of NTC thermistors provides a wide range of resistances and B-constants.
This makes them perfect for use in various applications as devices for temperature sensors and temperature compensation.

FEATURES

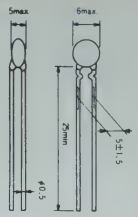
- **Thermally stable with consistent performance**
- **Very low deviation in temperature index**
- **Highly reliable**
- **Specifications and standards can be applied to meet any application and purpose**

APPLICATIONS

- **Temperature compensation of transistor IC circuits**
- **Temperature compensation of measuring equipment and various circuits**
- **Temperature sensor and temperature control for home appliances**

DIMENSIONS & SPECIFICATIONS

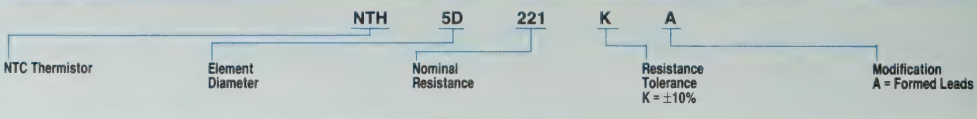
Dimensions: in (mm)



Part Number	Resistance 25°C (Ω)	B Constant 25/50°C (°K)	Resist. Temp. Coeff. 25°C (%/°C)	Part Number	Resistance 25°C (Ω)	B Constant 25/50°C (°K)	Resist. Temp. Coeff. 25°C (%/°C)
NTH5D221KA	220	3,300	-3.7	NTH5D682KA	6,800	4,100	-4.6
NTH5D331KA	330	3,300	-3.7	NTH5D103KA	10,000	4,100	-4.6
NTH5D471KA	470	3,500	-3.9	NTH5D153KA	15,000	4,100	-4.6
NTH5D681KA	680	3,500	-3.9	NTH5D223KA	22,000	4,200	-4.7
NTH5D102KA	1,000	3,800	-4.3	NTH5D333KA	33,000	4,200	-4.7
NTH5D152KA	1,500	3,800	-4.3	NTH5D473KA	47,000	4,200	-4.7
NTH5D222KA	2,200	3,900	-4.4	NTH5D683KA	68,000	4,400	-4.9
NTH5D332KA	3,300	3,900	-4.4	NTH5D104KA	100,000	4,400	-4.9
NTH5D472KA	4,700	3,900	-4.4	NTH5D154KA	150,000	4,400	-4.9

- B-constant deviation : ±10%
- Thermal dissipation constant :5.6 mW/°C
- Thermal time constant :20 sec.
- Operating temp. range :-30 to +125°C

PART NUMBERING SYSTEM



GLASS ENCAPSULATED NTC THERMISTORS

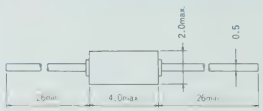
This NTC thermistor Series features chip elements for high accuracy and stability. Encapsulated in glass, these thermistors are suitable for applications demanding high reliability and/or temperature and humidity extremes.

FEATURES

- **Stable performance with negligible resistance and B-constant variation**
- **Glass encapsulation for reliable operation in high humidity-temperature environments**
- **Compact, light weight, easy to handle**
- **Custom orders can be produced to meet specific applications**

DIMENSIONS & SPECIFICATIONS

Dimensions: in (mm)



Part Number	Resistance (25°C)	B-Constant[2]	Thermal Dissipation Constant	Thermal Time Constant	Operating Temperature Range
NTH300XH502□01	5KΩ	3350K±3%	2.0mW/°C (Typical)	20 Seconds (Typical)	-40 to +300°C
NTH300XK103□01	10KΩ	3400K±3%			
NTH300XQ103□01	10KΩ	3650K±3%			
NTH300XW203□01	20KΩ	3950K±3%			
NTH300WA503□01	50KΩ	4000K±3%			
NTH300WC104□01	100KΩ	4100K±3%			
NTH300WE204□01	200KΩ	4200K±3%			

1 : Letter denoting the resistance tolerance is entered into the box. (K:±10%, J:±5%, E:±3%)
2 : Denotes the value obtained from the resistance at 25 and 50°C.

HIGH VOLTAGE RESISTOR MHR SERIES

P Type

D Type

F Type

Part Number	Size W×L(m)	E max (KV)	P max (W)	△T (°C)	Part Number	Size W×L(m)	E max (KV)	P max (W)	△T (°C)
MHR0629	6×29	12	1.0	27.4	MHR1538	15×38	25	2.2	19.5
MHR0643	6×43	20	1.7	24.0	MHR1550	15×50	30	2.5	17.0
MHR0718	7×18	10	1.0	32.7	MHR1760	17×60	30	2.8	16.6
MHR0830	8×30	17	1.8	23.8	MHR1839	18×39	25	2.2	18.7
MHR1220	12×20	15	1.5	27.5	MHR2551	25×51	35	3.0	14.4
MHR1428	14×28	22	1.7	23.5	MHR2660	26×60	35	3.5	13.3
MHR1351	13×51	30	2.3	18.1	MHR3458	34×58	35	4.0	12.3

Remarks: 1) $E=\sqrt{PR}$ E: Rated Voltage P: Rated Power R: Resistance Value 2) △T: Temperature rising per 1 watt (reference value)

PART NUMBERING SYSTEM

MHR	25	51	P	B	247	K
TYPE	DIMENSION OF SUBSTRATE (Ex. 25×51mm)		P: Epoxy resin dip type D: Flame-retardant epoxy resin dip type F: Epoxy resin print type	CIRCUIT CONNECTION	NOMINAL RESISTANCE	RESISTANCE TOLERANCE

FOCUS ADJUSTING RESISTOR

■ Focus Adjusting Resistor for Color TV-Display

MHF116 (16KV) for Projection

MHF045 (6KV) for 4″ ∿6″ CTV

MHF106 (10KV) for 14″ ∿CTV

MHF128 (16KV) for 25″ ∿CTV

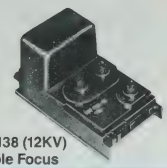
MHF107 (12KV) for 19″ ∿CTV

MHF002 (30KV) for Display

MHF103 (30KV) for Display (Capacitor Equipped)

MHF115 (40KV) for Display

MHF141 (32KV) Double Focus

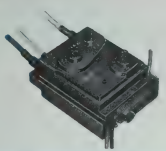


MHF138 (12KV) Double Focus

HIGH VOLTAGE CR BLOCK & MULTIPLIER

PART

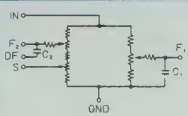
MSC63 (for CRT Display)



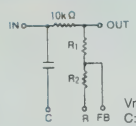
MSC52-01 (for CRT Display)

MSC46-01 (for Dynamic Focus)

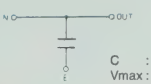
CIRCUIT



Vmax: 13kVDC
Rtotal: 100MΩ ± 20%
C_1: 330pF ± 20%
F_1 F_2 max. ≥ 89.9%
F_1 F_2 min. ≤ 63.3%
S max. ≥ 11.0%
S min. ≤ 2.0%
C_2: 470pF ± 20%



Vmax: 35kVDC
C: 6500pF
$R_1 + R_2$: 400MΩ
$R_2/(R_1 + R_2)$: 1/2000



C : 1000pF
Vmax : 15kVDC

Part Number	Capacitance 20KV	Capacitance 30KV	Capacitance 35KV	Bleeder Resistor	Focus Output
MSC26, MSC27 MSC32, MSC33	4300pF max.	3000pF max.	2600pF max.	—	○
MSC28, MSC29 MSC34, MSC35				○	—
MSC30, MSC31 MSC36, MSC37				—	—
MSC52, MSC53	—	6500pF max.	6500pF max.	○	—
MSC56, MSC57	—			—	—
MSC63	—	—	—	—	○
MSC68, MSC69	—	4500pF max.	4500pF max.	—	○

FEATURES

- Low cost
- Broad band response
- High sensitivity
- No cryogenics
- HIC® H8D1779 type preamplifier is available for dual elements.

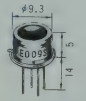
APPLICATIONS

- Passive IR Intruder Alarm System
- Automatic Door
- Light Switch
- Physical Detectors
- Toy, etc.

DIMENSIONS: in. (mm)

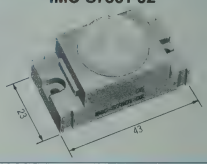
IRA-E100SZ1, IRA-E100SV1
IRA-E100ST1, IRA-E100S1

IRA-E009SX1



IRA-E001S
IRA-E001SX

IMC-S7801-02



RATINGS (25°C, TYPICAL TYPE)

Part Number	Responsivity (500°K, 1Hz, 1Hz)	Specific Detectivity (500°K, 1Hz, 1Hz)	Wave Length Range	Rise Time	Field of View	Filter	Electrode	Supply Voltage	Output Resistance	Operating Temp. Range	Storage Temp. Range
IRA-E100SZ1 (Dual Element)	1150V/W	$1.2X10^8$cmHz$^{1/2}$/W	7 to 14μm	<25msec.	51°	Long Pass Silicon	(2X1) mm X2	3 to 15V	—	−25 to +55°C	−30 to +100°C
IRA-E100SV1 (Dual Element)	1860V/W	$1.0X10^8$cmHz$^{1/2}$/W	1 to 20μm	<25msec.	38°	AR coat Silicon	(2X1) mm X2	3 to 15V	—	−25 to +55°C	−30 to +100°C
IRA-E009SX1 (Quad Element)	1080V/W	$0.9X10^8$cmHz$^{1/2}$/W	7 to 14μm	<25msec.	θ1=47° θ2=32°	Long Pass Silicon	(1.75X1) mm X4	3 to 15V	—	−25 to +55°C	−30 to +100°C
IRA-E001S (Single Element)	870V/W	$1.0X10^8$cmHz$^{1/2}$/W	1 to 20μm	<25msec.	70°	Silicon	φ 2mm	3 to 15V	10kΩ	−20 to +80°C	−30 to +100°C

*Please see the above Spectral Response.

IR Sensor Module	Detecting Distance	Detecting Range	Current Consumption	Supply Voltage	Operating Temp. Range	Storage Temp. Range
IMC-S7801-02	≥5m (at normal walk)	90°X52.5°	≥2.5mA	3 ~ 6V	−25 to +55°C	−30 to +80°C

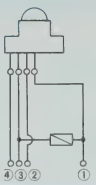
SPECIFICATIONS

Part Number	IRA-E100SZ1	IRA-E100ST1	IRA-E100SV1	IRA-E100S1	IRA-E009SX1	IRA-E001S	IRA-E001SX
Element	Dual	Dual	Dual	Dual	Quad	Single	Single
Filter	7 μm	5 μm	1 μm (AR coat)	1 μm	7 μm	1 μm	7 μm
Body	•	•	•	•	•		•
Thermal						•	

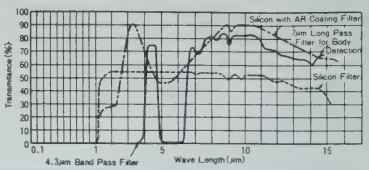
*The Pyroelectric infrared Sensors with the filters not mentioned in the above table are also manufacturable.

IMC-S7801-02

① Output (Open Collector)
Load : 1 KΩ min.
② GND
③ Supply
④ Timer Setting



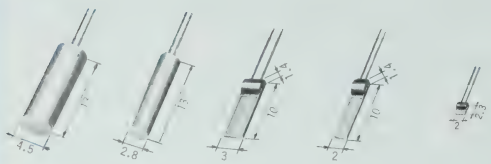
Spectral Response of Filter Materials



THIN FILM PLATINUM TEMPERATURE SENSOR

DIMENSIONS in. (mm)

TRRA TRRB TRFA TRFB TRFC



SPECIFICATIONS

Part Number			Resistance (0°C)	Temperature Range
TRFA101□	TRFB101□	TRFC101□	100Ω	−50 to +600°C
TRFA501□	TRFB501□		500Ω	
TRFA102□	TRFB102□		1KΩ	
TRRA101□	TRRB101□		100Ω	
TRRA501□	TRRB501□		500Ω	
TRRA102□	TRRB102□		1KΩ	

*□ : Letter donating the class is entered into the box. (A to D)

Class	Resistance Tolerance (0°C)	Temperature Coefficient of Resistance (0 to 100°C)
*A	±0.06%	3850±5ppm/°C
*B	±0.12%	3850±13ppm/°C
C	±0.24%	3850±13ppm/°C
D	±0.60%	3850±65ppm/°C

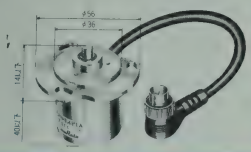
★DIN 43760, IEC 751

NON-CONTACT POTENTIOMETER

LP06M2F1HA LP06M3R1HA LP06M4R1HA

LP05D3G1AA

LP08L4P1AA



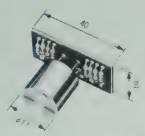
Part Number	LP06M2F1HA	LP06M3RH1A LP06M4R1HA	LP05D3G1AA	*LP08L4P1AA
Maximum Rated Voltage (V)	6	6	5	8+5%
Effective Electrical Travel (°)	±50	±50	±30	±9
Output Sensitivity (mV/deg.)	22(Vin=6V)	22(Vin=6V)	12(Vin=5V)	107 (With Amp.)
Independent Linearity (%)	±1.5 max.	±1.5 max.	±1.5 max.	±1 max.
Temperature Characteristic of Output Voltage (%/°C)	−0.4 to −0.15	−0.4 to −0.15	±0.12	±0.04
Maximum Rotation Torque (gm•cm)	0.5 max.	5 max.	5max.	18 max.
Operating Temperature Range (°C)	−10 to 80	−10 to 80	−10 to 80	+5 to 60

*Booked quantity production.

ROTARY SENSOR

FR05CM21AA

FR05CM42AA



FR12AM21AA

Part Number		FR05CM21AA	FR05CM42AA
Max. Applied Volt. (V)		8	6.5
Normally Applied Volt. (V)		to 5	to 5
Output Volt. (V)		Gap = 0.2mm 0.5p-p	Gap = 0.15mm 0.45p-p
Response Freq. (MHz)		0 to 1	0 to 1
Resistance between Input Terminal (Ω) Gap = ∞		0.7 to 1.5	0.2 to 1.0
Operating Temp. Range (°C)		−10 to +70	−10 to +80
Sensing Module (Magnetic Gear)		0.3 to 1.0	0.4
Phase Difference		1 Phase	2 Phase (90°)
*$M=\frac{D}{Z}$ M : Module D : Diameter of pitch circle Z : Numbers of tooth			
Part Number		FR12AM21AA	
Max. Applied Volt. (V)		16	
Normally Applied Volt. (V)		12±2	
Load Current (mA)		≤50	
Out put	Output System	Open Collector	
	Applied Current (mA)	≤30	
	Applied Voltage (V)	≤24	
	Output Volt. (V) High Level	≥11	
	Output Volt. (V) Low Level	≤0.5	
Response Freq. (KHz)		0 to 20	
Sensing Module (Magnetic Gear)		≥1	
Sensing Gap (mm)		≤1	
Operating Temp. Range (°C)		0 to 70	

CURRENCY RECOGNITION SENSOR

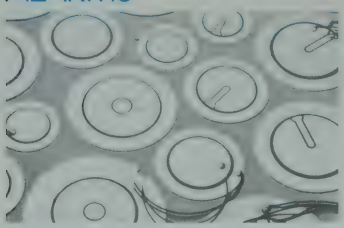
BS05C1HFAA
BS05C1HGCA

BS05N1HGAA

Part Number	BS05C1HFAA	BS05C1HGCA	BS05N1HGAA	BS05i1KFAA
Max. Applied Volt. (V)	5	5	5	5
*¹Output Volt. (mV)	≥400	≥240	≥240	0.3 to 0.8
Track Width (mm)	3	3	3	10
Operating Temp. Range (°C)	−20 to 60	−20 to 60	−20 to 60	−20 to 60

*According to our measuring method.

PIEZOELECTRIC ACOUSTIC ELEMENTS & ALARMS



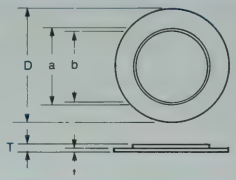
FEATURES

- Extremely clear penetrating sound
- Completely solid state
- One-tenth the power consumption of a comparable electromechanical buzzer
- No electronic noise generation
- Compact size and lightweight
- Variety of models for various tone functions

APPLICATIONS

- Fire alarms
- Gas detectors
- Calculators
- Medical electronics
- Appliances
- Burglar alarms
- Automobiles
- Aircraft
- Clocks
- Watches
- Communications systems
- Data processing
- Instrument and control systems
- Restaurant equipment
- Recreational equipment

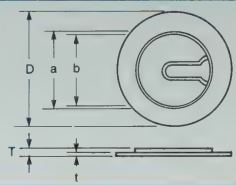
EXTERNAL DRIVE (without feedback electrode)



Part Number	Characteristics (*1, *2)			Dimensions: mm				
	Resonant frequency (KHz)	Resonant resistance (Ω)	Capacitance (pF)±30%	D	a or c	b	T	t
★7BB-20-6	6.3±0.6	≤350	10000	2.0±0.2	14.0±0.6	12.8±0.2	0.42±0.1	0.20±0.05
★7BB-27-4	4.6±0.5	≤200	20000	27.0±0.2	19.7±0.6	18.2±0.2	0.54±0.1	0.30±0.05
★7BB-35-3	2.8±0.5	≤200	10000	35.0±0.2	25.0±0.6	23.0±0.2	0.53±0.1	0.30±0.05
7BB-41-2	2.2±0.3	≤250	30000	41.0±0.2	25.0±0.6	23.0±0.2	0.63±0.1	0.40±0.05
7NB-41-25DM-1	85±.25	≤300	75000	41.0±0.2	25.0±0.5	23.0±0.2	0.21±0.5	0.10±0.03

*1 Insulation resistance 100MΩmin. (at 100VDC)
*2 Maximum applied voltage 30Vp-p

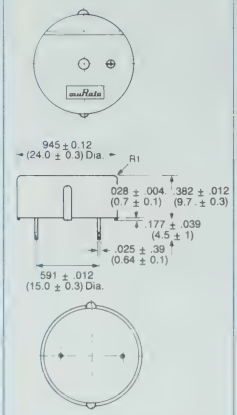
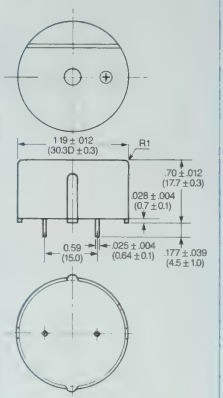
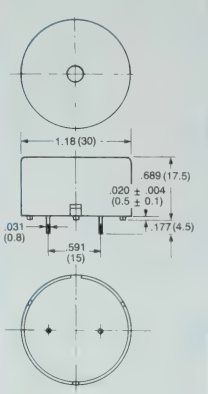
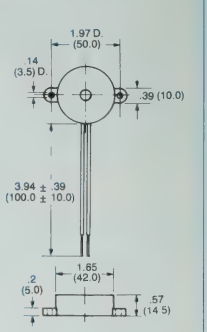
SELF-DRIVEN (with feedback electrode)



Part Number	Characteristics (*1, *2)			Dimensions: mm				
	Resonant frequency (KHz)	Resonant resistance (Ω)	Capacitance (pF)±30%	D	a	b	T	t
7BB-20-6C	6.3±0.6	≤500	8500	20.0±0.2	14.0±0.6	12.8±0.2	0.42±0.1	0.20±0.05
7BB-27-4C	4.6±0.5	≤200	18000	27.0±0.2	19.7±0.6	18.2±0.2	0.54±0.1	0.30±0.05
7BB-35-3C	2.8±0.5	≤200	24000	35.0±0.2	25.0±0.6	23.0±0.2	0.53±0.1	0.30±0.05
7BB-41-2C	2.2±0.3	≤250	24000	41.0±0.2	25.0±0.6	23.0±0.2	0.63±0.1	0.40±0.05
★7SB-34R7-3C	3.3±0.3	≤150	40000	34.7±0.2	25.0±0.6	23.4±0.2	0.50±0.1	0.25±0.05
★7SB-34R7-3C2	3.1±0.5	≤160	24000	34.7±0.2	25.0±0.6	23.0±0.2	0.50±0.1	0.25±0.05

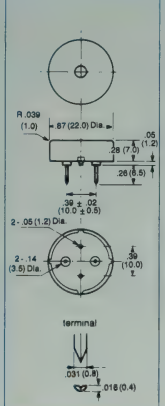
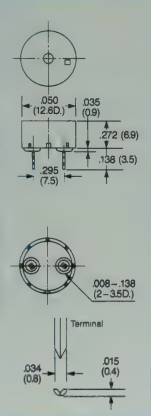
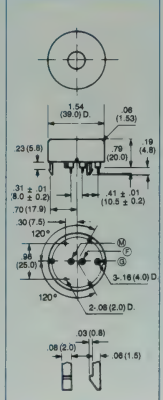
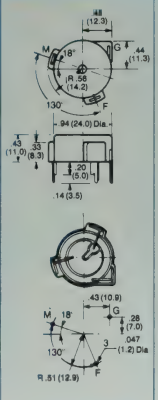
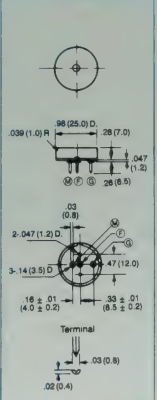
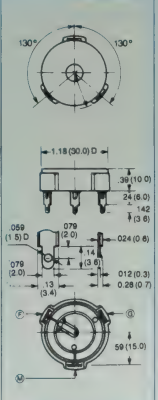
To denote lead wire, add "A0" suffix (Ex. 7BB-20-6A0).

ENCASED PIEZO-ALARMS WITH INTERNAL CIRCUITRY

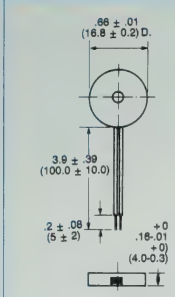
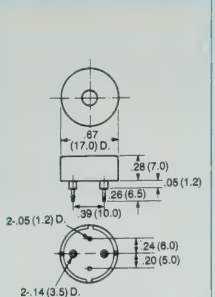
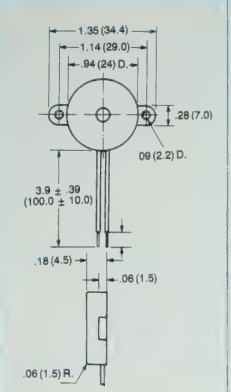
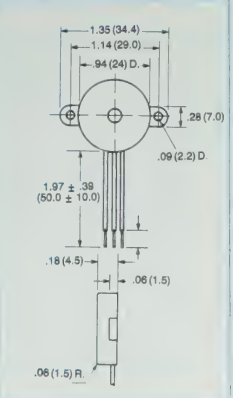
Part Number	★PKB24SPC-3601	PKB30SPC-2001*	★PKB30SPC-3001	★PKB5-3A0
Sound Pressure Level	90dB@10cm@12V	75dB@1M@12V	75dB@30cm@12V	85dB@30cm@9V
Oscillating Frequency	3.6 ± 0.5KHz	2.0 ± 0.4KHz	2.9 ± 0.5KHz	2.8 ± 0.5KHz
Current	16mA@12V	15mA@12V	15mA@12V	12mA@9V
Operating Voltage	3 to 15V	3 to 15V	3 to 15V	3 to 20V
Operating Temp. Range	−20°C to +70°C	−20°C to +70°C	−20°C to +70°C	−20°C to +60°C
UL Rating	UL-94V0	UL-94V0	UL-94V0	24AWG (UL-1007)
DIMENSIONS: (mm)				

*These parts are also available as washable parts with tape covering the sound emitting hole and epoxy seal at the case bottom.
★Available as standard through authorized Murata Erie Distributors.

ENCASED PIEZO-ALARMS

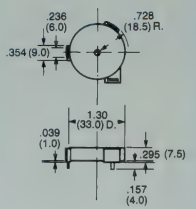
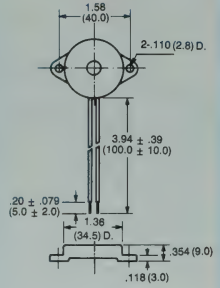
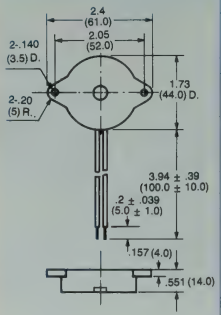
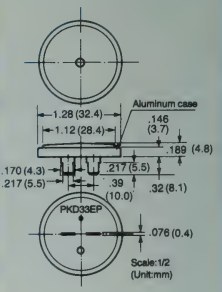
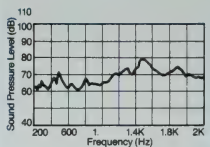
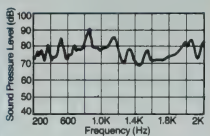
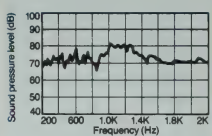
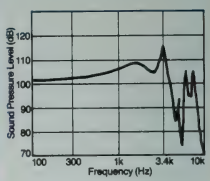
Part Number	★PKM22EPP-4001	PKM13EPP-4002	★PKM29-3A0	PKM24SP-3805	★PKM25-6A0	★PKM37-2A0
Sound Pressure Level	75dB@10cm@3Vp-p	70dB@10cm@3Vp-p	85dB@9V@1M	90dB@12V@10cm	85dB@6.5V@10cm	70dB@12V@1M
Oscillating Frequency	4KHz	4.0KHz	3.4 ± 0.4KHz	3.8 ± 0.4KHz	6.8 ± 0.7KHz	2.0 ± 0.5KHz
Current	1mA@3Vp-p		20mA@9V	12mA@12V	10mA max.	15mA max.
Operating Voltage	3 to 30Vp-p	3 to 25Vp-p	4.5 to 18.0V	3 to 20V	3 to 20V	3 to 20V
Operating Temp. Range	−20°C to +70°C	−20°C to +70°C	−20°C to +70°C	−20°C to +70°C	−20°C to +70°C	−20°C to +70°C
UI Rating	UL-V0	UL-94V0	UL-V0	UL-94HB		
DIMENSIONS: (mm)						

MINIATURE ENCASED PIEZO-ALARMS

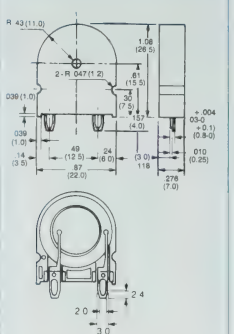
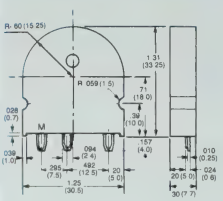
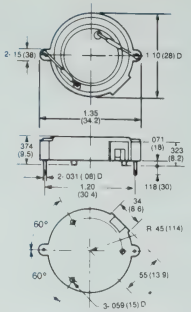
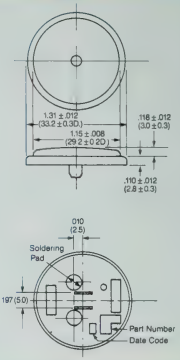
Part Number	★PKM35-4A0	★PKM17EPP-4001	★PKM11-4A0	★PKM11-6A0
Sound Pressure Level	75dB@10cm@3Vp-p	72dB@10cm@3Vp-p	75dB@10cm@3Vp-p	75dB@6.5V@10cm
Oscillating Frequency	4KHz	4KHz	4096	6.5 ±0.7KHz
Current	1mA@3Vp-p	1mA@3Vp-p	1mA max.	8mA@6.5V
Operating Voltage	3 to 25Vp-p	3 to 20Vp-p	3 to 25Vp-p	3 to 15V
Operating Temp. Range	-20°C to +70°C	-20°C to +70°C	-20°C to +60°C	-20°C to +60°C
UL Rating	UL-94HB	UL-94VO	UL-V1	UL-V1
Leads	32AWG (UL-1685)		30AWG (UL-1571)	30AWG (UL-1571)
Dimensions: in (mm)				

★Available as standard through authorized Murata Erie Distributors.

PIEZO RINGERS FOR LOW FREQUENCY APPLICATIONS

Part Number	★PKM33EP-1001	★PKM34EW-1101	★PKM44EW-1001A	★PKD33EP-01R
Sound Pressure Level	70dB min./50cm/20Vp-p square wave at 1.0KHz	70dB min./1m/30Vp-p square wave at 1.1KHz	65dB min./30cm/9Vp-p square wave at 1.0KHz	105dB (1V RMS, 1KHz, 6cc coupler)
Allowable Input	30Vp-p max.	40Vp-p max.	30Vp-p max.	30Vp-p max.
Operating Temp. Range	-20°C to +70°C	-20°C to +70°C	-30°C to +70°C	55μF (at 120Hz)
Lead Wire		30 AWG UL-1571	28 AWG UL-1685	
Dimensions: in (mm)				
SOUND PRESSURE LEVEL VS. FREQUENCY CHARACTERISTICS	 Input Voltage: 20.0Vp-p Square Wave Distance: 50.0cm	 Input Voltage: 30.0Vp-p Square Wave Distance: 1m	 Input Voltage: 9.00Vp-p Square Wave Distance: 30.0cm	 Input Voltage: 1.00Vrms Sine Wave Coupler: 6cc

PIEZO-ALARMS FOR SPECIAL APPLICATIONS

Part Number	PKM22EPT35-2001	PKM30SPT-2001	PKM28SEP-2001	PKD34EP-01R
Sound Pressure Level	70dB@2KHz@10cm@3Vp-p	75dB@10cm@12V	65dB@45.7cm@5Vrms	102±3.5dB (2.5cc coupler)
Oscillating Frequency	2.0KHz	2.0 ± 0.3KHz	2.0KHz	300Hz–3.4KHz
Current		20mA max.		
Operating Voltage	3 to 25Vp-p	3 to 20V	3 to 40Vrms	30 Volt RP
Operating Temp. Range	−20°C to +70°C	−20°C to +70°C	−30°C to +60°C	−20°C to +70°C
UL Rating	UL-94HB	UL-V1	UL-94V0	
DIMENSIONS: (mm)				

★Available as standard through authorized Murata Erie Distributors.

ULTRASONIC CERAMIC MICROPHONES
MA40A3/MA40A5

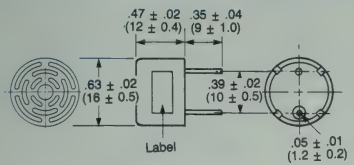
FEATURES

- High sensitivity, small sized and light weight
- Excellent in humidity resistance and fine temperature characteristics
- Excellent vibration and shock resistance
- Large operation range

APPLICATIONS

- Remote control of television, air conditioner or other electronic equipment
- Sensor of burglar alarm system, range finder, etc.
- Sensor for counter

DIMENSIONS AND CHARACTERISTICS



Part Number	MA40A5R	MA40A5S
Use	Receiver	Transmitter
Nominal Frequency	40KHz	
Max. Sensitivity (Sound Level)	−67dB min.	112dB min.
Bandwidth	6KHz min. at −74dB	7KHz min. at 90dB
Capacitance	2000pF	2000pF
Insulation Resistance	100 MΩ min.	
Temperature Characteristics	Variation of sensitivity is within −10dB at −20°C to +60°C	

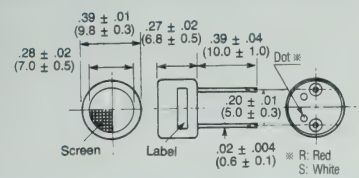
NOTE: Sensitivity 0 dB = 1 V/μbar
Sound Level 0 dB = 2×10^{-4} μbar at 30cm

FEATURES

- Subminiature type
- High sensitivity and excellent temperature characteristics
- Excellent humidity resistance, vibration resistance and shock resistance

APPLICATIONS

- Range finder, adjacent switch or burglar alarm system
- Remote control of air conditioner or other electronic equipment
- Sensor for counter or human body



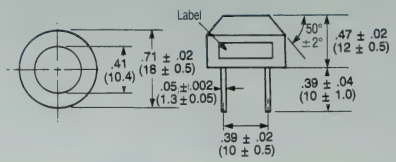
Part Number	MA40S2R	MA40S2S
Use	Receiver	Transmitter
Nominal Frequency	40KHz	
Max. Sensitivity (Sound Level)	-74dB min.	100dB min.
Bandwidth	6KHz min. at -80dB	7KHz min. at 90dB
Capacitance	1600pF	1600pF
Insulation Resistance	100 MΩ min.	
Temperature Characteristics	Variation of sensitivity is within -10dB at -20°C to +60°C	

ULTRASONIC CERAMIC MICROPHONES
MA40E1R/S

FEATURES
- Can be used outdoors because of its waterproof structure
- Excellent ambient temperature
- High sensitivity and excellent temperature characteristics

APPLICATIONS
- Automobile back up sensors
- Rear obstructives detection for cars
- Distance measurement or object detection outdoors
- Water level or liquid level meter

DIMENSIONS AND CHARACTERISTICS



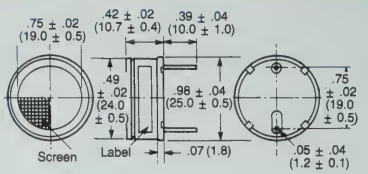
Part Number	MA40E1R	MA40E1S
Use	Receiver	Transmitter
Nominal Frequency	40KHz	
Max. Sensitivity (Sound Level)	-74dB min.	106dB min.
Bandwidth	2KHz min. at -80dB	1.5KHz min. at 100dB
Capacitance	2200pF	2200pF
Insulation Resistance	100 MΩ min.	
Temperature Characteristics	Variation of sensitivity is within -10dB at -30°C to +80°C	

MA23L3/MA40B6

FEATURES
- A special structure provides broad band use
- High sensitivity and large operating range
- Excellent humidity resistance and fine temperature characteristics
- Excellent vibration and shock resistance

APPLICATIONS
- Remote control of television, etc.
- Burglar alarm system

DIMENSIONS AND CHARACTERISTICS

Part Number	MA23L3
DIMENSIONS: mm	
Nominal Frequency	23KHz
Sensitivity	−70dB min.
Bandwidth	−73dB min. at 20 to 26KHz
Capacitance	2800pF
Insulation Resistance	100mΩ or More
Max. Input Voltage	20Vrms
Temperature Characteristic	Variation of sensitivity is within 10dB at −20° to +60°C

PIEZOELECTRIC CERAMIC RESONATORS

Murata Erie's ceramic resonators are widely used in clock oscillators for microprocessors, replacing quartz crystals at substantially reduced cost, and in many other applications.

Features of ceramic resonators include low cost, good stability, small size and rugged construction, and a wide frequency range.

SPECIFICATIONS

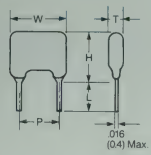
TYPE	CSA TYPE	CSB TYPE	CST TYPE
Frequency Range	1.26 to 32 MHz	190 to 1250 KHz	2.0 to 26.99 MHz
Frequency Tolerance	±0.5%	±0.5%	±0.5%
Temperature Stability (–20°C to +80°C)	±0.5%	±0.3%	±0.3%
Time Stability (10 years)	±0.3%	±0.3%	±0.3%

Available as standard through authorized Murata Erie Distributors

CSA 11.0 MT	CSA 8.00 MT
CSA 2.00 MG	CSB 400 J
CSA 3.58 MG	CSB 455 J
CSA 4.00 MG	CSB 480 J
CSA 6.00 MG	CSB 500 J
	CSB 640 J

CSA TYPE*

Dimensions: in. (mm)

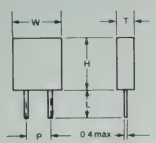


Dimensions mm	MK	MG	MT	MX
	1.26 to 1.799 MHz	1.8 to 6.0 MHz	6.01 to 13.0 MHz	10.0 to 32.0 MHz
W	10.0	10.0 (12.0)**	10.0	10.0
H	10.0	7.5 (12.0)	10.0	10.0
T	5.0	5.0 (5.0)	5.0	5.0
P	5.0	5.0 (5.0)	(5.0)	5.0
L	5.0	5.0 (5.0)	5.0	5.0
	Capacitance			
CL_1	30pF			
CL_2	30pF			

**Dimensions in parentheses ( ) for Freq. Range 2.0 to 2.75 MHz

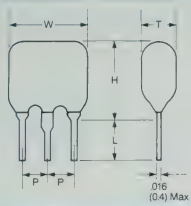
CSB TYPE*

D : Offset
J : In-Line



Dimensions mm	D	D	J	J	J	J
	190 to 249 KHz	250 to 374 KHz	375 to 429 KHz	430 to 519 KHz	520 to 699 KHz	700 to 1250 KHz
W	13.5	10.8	8.0	7.5	7.5	5.0
H	14.5	12.2	9.0	8.5	7.2	6.0
T	3.8	3.8	3.3	3.3	2.8	2.2
P	10.1	7.7	5.0	5.0	5.0	2.5
L	9.0	6.7	3.5	3.5	3.5	3.5
	Capacitance					
CL_1	330pF	220pF	120pF	100pF	100pF	100pF
CL_2	470pF	470pF	470pF	100pF	100pF	100pF

CST TYPE*

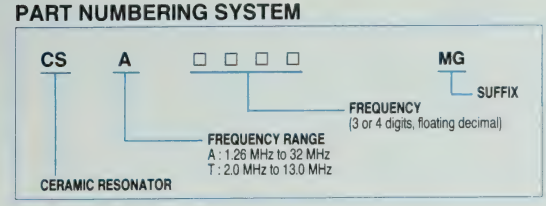


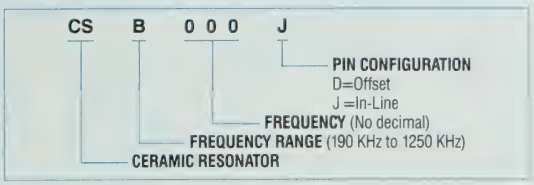
Dimensions mm	MG	MT	MGW
	2.00 to 6.00 MHz	6.0 to 13.0 MHz	2.45 to 6.0 MHz
W	10.0	10.0	10.0
H	10.0	10.0	5.0
T	5.0	5.0	5.0
P	2.5	2.5	2.5
L	5.0	5.0	5.0

CL_1 and CL_2 (loading capacitors) built-in.

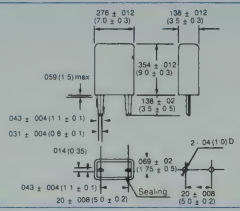
*For additional information, please refer to Catalog #63-06

PART NUMBERING SYSTEM





EMITTER BYPASS FILTER

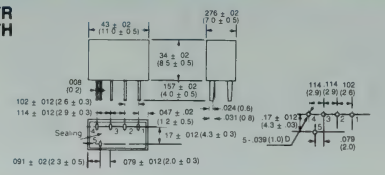


Model	Center Frequency (KHz)	3dB Bandwidth (KHz)	Ripple (dB) max.	Selectivity (dB) min.	Termination Impedance (ohms) max.
BFU455K	455±2	8 (±2KHz)	—	8 @ -9KHz 12 @ +9KHz	30 (15)

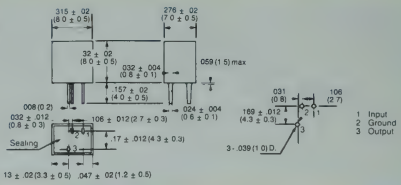
Dimensions: (mm)

CERAMIC FILTERS FOR DIGITAL COMMUNICATIONS

SFR
SFH



SFP
SFG

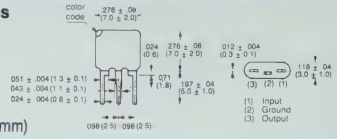


Dimensions: (mm)

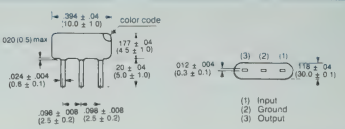
Model	Nominal Center Frequency (KHz)	6dB Bandwidth (KHz) min.	Stopband Attenuation (dB) min. (f_0±100KHz)	Ripple (dB) max.	Selectivity (dB) min.	GDT 20μ/Sec. Bandwidth (KHz)	Insertion Loss (dB) min.	Input/Output Impedance (ohms)	Operating Temperature Range	Withstanding Voltage
SFP450D	450	±10	27	450±7 2	40 @ ±20KHz	—	4	1.5K	-20°C to +80°C	50V DC
SFP450F	450	±6	27	450±4 1.5	40 @ ±12.5KHz	—	6	2K		
SFR450D	450	±10	25	—	50 @ ±20KHz	—	5	2K		
SFR450F	450	±6	25	—	50 @ ±12.5KHz	—	4	1.5K		
SFG450D	450	±10	23	—	40 @ ±25KHz	±9	7	1.5K		
SFG450F	450	±6	23	—	40 @ ±17.5KHz	±6	9	2K		
SFH450D	450	±10	35	—	50 @ ±25KHz	±8	8	1.5K		
SFH450F	450	±6	35	—	50 @ ±17.5KHz	±5	10	2K		

CERAMIC FILTERS FOR FM RADIOS

SFE Series



SFT 10.7 Series



Dimensions: (mm)

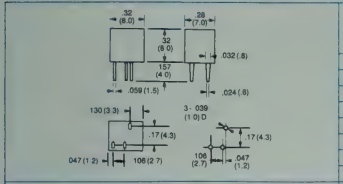
Model	Center Frequency (MHz, ±30KHz)	3dB Bandwidth (KHz) min.	20dB Bandwidth (KHz) max.	40dB Bandwidth (KHz) max.	Ripple (dB) max.	Spurious Response (8-12MHz) (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)	Operating Temperature Range	Withstanding Voltage
★SFE 10.7MA5-Z	★A:10.7 (Red) B:10.67 (Blue) C:10.730 (Orange) D:10.640 (Black) E:10.760 (White)	280±50	650	—	1.0	30	6	330	-20°C to +80°C	50V DC
★SFE 10.7MS2-Z		230±50	570	—	1.0	40	6			
★SFE 10.7MS3-Z		180±40	520	—	1.0	40	7			
★SFE 10.7MJ-Z		150±40	380	—	1.0	38	10			
SFT 10.7MS3-Z		180±40	—	550	0.5	(9-12 MHz) 50	7.5			
SFT 10.7MA5-Z		280±50	—	700	0.5	(9-12 MHz) 50	6.0			

Z = Combination of all frequency groups (A thru E)

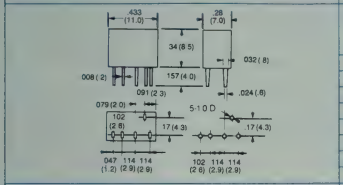
★Available as standard through authorized Murata Erie Distributors.

MULTI-ELEMENT LADDER FILTERS FOR HIGH SELECTIVITY

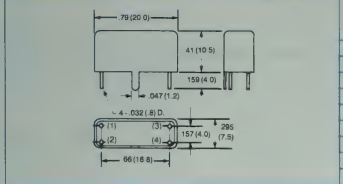
Dimensions: in (mm)



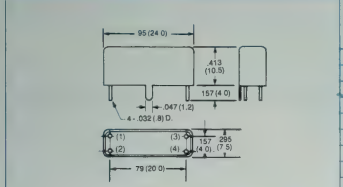
Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	40dB Bandwidth (KHz) min.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
★CFU455B2	455±2	±15	±30	27	4	1500
★CFU455C2	455±2	±12.5	±24	27	4	1500
★CFU455D2	455±1.5	±10	±20	27	4	1500
★CFU455E2	455±1.5	±7.5	±15	27	6	1500
CFU455F2	455±1.0	±6	±12.5	27	6	2000
CFU455G2	455±1.0	±4.5	±10	25	6	2000
CFU455H2	455±1.0	±3	±9	25	6	2000
CFU455I2	455±1.0	±2	±7.5	25	6	2000



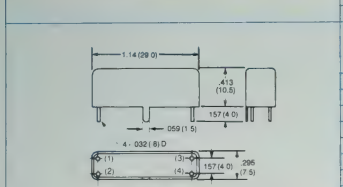
Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) min.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
★CFW455B	455±2	±15	±30	35	4	1500
★CFW455C	455±2	±12.5	±24	35	4	1500
CFW455D	455±1.5	±10	±20	35	4	1500
CFW455E	455±1.5	±7.5	±15	35	6	1500
CFW455F	455±1.0	±6	±12.5	35	6	2000
CFW455G	455±1.0	±4.5	±10	35	6	2000
CFW455H	455±1.0	±3	±9	35	6	2000
CFW455I	455±1.0	±2	±7.5	35	7	2000



Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	50dB Bandwidth (KHz) min.	Ripple (dB) max.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
★CFM455A	455±2	±17.5	±30	3dB within 3dB B.W. and 6dB within 6dB B.W.	50	3	1000
CFM455B	455±2	±15	±25		50	3	1000
CFM455C	455±2	±13	±23		50	3	1000
CFM455D	455±1.5	±10	±20		50	3	1500
CFM455E	455±1.5	±8	±16		45	5	1500
CFM455F	455±1.0	±6	±12		45	5	2000
CFM455G	455±1.0	±4	±10	*	45	5	2000
CFM455H	455±1.0	±3	±7.5	*	45	6	2000
CFM455I	455±1.0	±2	±5	*	45	7	2000



Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	70dB Bandwidth (KHz) min.	Ripple (dB) max.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
CFR455A	455±2	±17.5	±30	3dB within 3dB B.W. and 6dB within 6dB B.W.	60	4	1000
CFR455B	455±2	±15	±25		60	4	1000
CFR455C	455±2	±13	±23		60	4	1000
CFR455D	455±1.5	±10	±20		60	4	1500
CFR455E	455±1.5	±8	±16		55	6	1500
CFR455F	455±1.0	±6	±12		55	6	2000
CFR455G	455±1.0	±4	±10	*	55	6	2000
CFR455H	455±1.0	±3	±7.5	*	55	7	2000
CFR455I	455±1.0	±2	±5	*	55	8	2000
CFR455J	455±1.0	±1.5	±4.5	*	55	8	2000



Model	Center Frequency (KHz)	6dB Bandwidth (KHz) min.	70dB Bandwidth (KHz) min.	Ripple (dB) max.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
CFS455A	455±2	±17.5	±30	3dB within 3dB B.W. and 6dB within 6dB B.W.	70	4	1500
CFS455B	455±2	±15	±25		70	4	1500
CFS455C	455±2	±13	±23		70	4	1500
CFS455D	455±1.5	±10	±20		70	4	1500
CFS455E	455±1.5	±8	±15		70	6	1500
CFS455F	455±1.0	±6	±12		70	6	2000
CFS455G	455±1.0	±4	±9	*	70	6	2000
CFS455H	455±1.0	±3	±7.5	*	70	7	2000
CFS455I	455±1.0	±2	±5	*	70	8	2000
CFS455J	455±1.0	±1.5	±4.5	*	60	8	2000

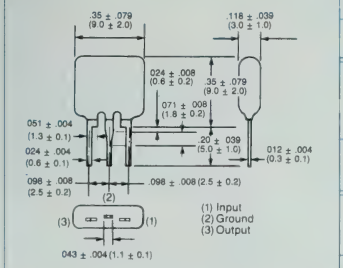
*3dB Ripple in 6dB B.W.

(Other bandwidths available.)

TV SOUND FILTERS

Dimensions: in (mm)

SFE



Model	Nominal Frequency (MHz)	3dB Bandwidth (KHz) min.	20dB Bandwidth (KHz) max.	Spurious Response (dB) min.	Insertion Loss (dB) max.	Input/Output Impedance (ohms)
★SFE 4.5 MBF	4.5	±60	530KHz	30dB min. (3.5-4.5MHz) 20dB min (4.5-5.3MHz)	6	1000

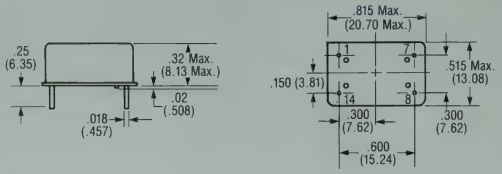
Model	Nominal Frequency (MHz)	Recovered Audio Volt. (mV min.)	Recovered Audio 3dB Bandwidth (KHz)	Distortion Factor (90 max.)	Modulation	Applicable I.C.
CDA 4.5MD 3	4.5	100	±45 min.	3 ± 45KHz	400MHz ±7.5KHz Dev. FM	CA 3065 (RCA)

Model	Nominal Frequency (MHz)	20dB Bandwidth (KHz) max.	Min. Attenuation (dB min. at fo)
★TPS 4.5 MBF	4.5	50 min.	35

★Available as standard through authorized Murata Erie Distributors.

VCXO, MINIATURE HYBRID

DIMENSIONS: in. (mm)



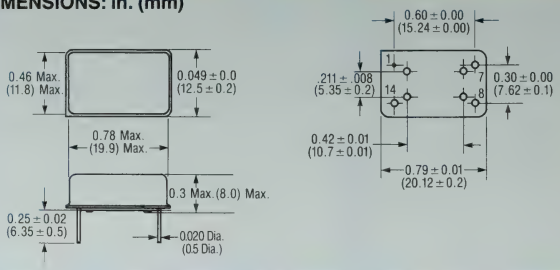
PIN	FUNCTION
1	Voltage Control Input
7	V_{ee} (−5.2V)
8	Output
14	Case & Circuit Ground

SPECIFICATIONS

Model	Features	Frequency Range	Input Voltage & Current	Output Type	Control Voltage and Freq. vs. Voltage Slope	AFC Input Impedance	Linearity	Deviation	Temp. Stability	Temp. Range
VH2340HE	High frequency fundamental crystal	15MHz to 60MHz	−5.2VDC @ 35mA Typ.	ECL E Std. "10KH"	0V to −5.0V Negative	10KΩ Min.	±20%	±100ppm	±25ppm	0°C to 70°C

VCXO, LOW COST

DIMENSIONS: in. (mm)



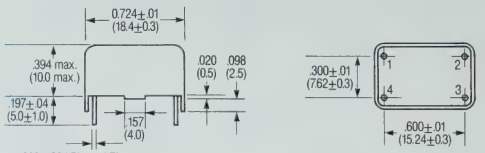
PIN	FUNCTION
1	VC
7	V_{ee}
8	Output
14	V_{cc}

SPECIFICATIONS

Model	Features	Frequency Range	Input Voltage & Current	Output Type	Deviation	Temp. Stability	Control Voltage	Aging Rate	Temp. Range
VO312AC	Low cost; Low profile	VO3120:8MHz to 24MHz VO3121:8MHz to 36MHz	VO3120:5VDC @ 20mA VO3121:5VDC @ 30mA	CMOS Std.	VO3120:± 50ppm VO3121:±200ppm	±30ppm	2.5±2V	VO3120: 4ppm/Yr. VO3121:10 ppm/Yr.	−10°C to 60°C
VO3130AT	High frequency	36MHz to 75MHz	5VDC @ 60mA	TTL Std.	±50ppm	±15ppm	2.5±2V	10ppm/Yr.	0°C to 70°C

TCVCXO, LOW COST

DIMENSIONS: in. (mm)



PIN	FUNCTION
1	VC
2	Ground
3	Output
4	V_{cc}

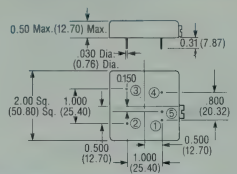
SPECIFICATIONS

Model	Features	Frequency Range	Frequency Stability vs. Temperature Range	Input Voltage & Current	Output Type	Aging Rate	Frequency Adjustment	Frequency Control
TV3023AR	Low cost	9.6MHz to 26MHz	±2.5ppm, −20°C to +70°C	5VDC @ 2mA	1Vp-pmin/ (DC-CUT) 1,110 pF	±1ppm/Yr.	Int. Trimmer	2.5V±2V= ±6.0ppm to ±12ppm

TCXO, STANDARD

DIMENSIONS: in. (mm)

PIN	FUNCTION
1	Output
2	B+
3	Ground
4	N/C
5	Ground



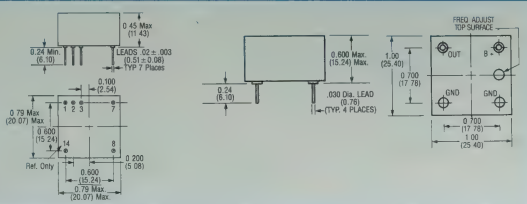
SPECIFICATIONS

Model	Features	Frequency Range	Frequency Stability vs. Temperature Range	Input Voltage & Current	Output Type	Aging Rate	Frequency Adjustment
TC2140DT	High stability Very low aging	6MHz to 20MHz	±0.25ppm 0°C to +50°C	+12VDC @ 15mA max.	TTL Std.	0.2ppm/Yr.	Mechanical 10 Yr. Range Minimum

TCXO, MINIATURE

DIMENSIONS: in. (mm)

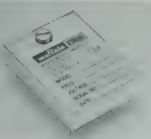
PIN	FUNCTION
1	Ground
2	RF Output
3	+VDC
7	Frequency Adj. V ref.
8	N/C
12	N/C
14	Frequency Adj. input



SPECIFICATIONS

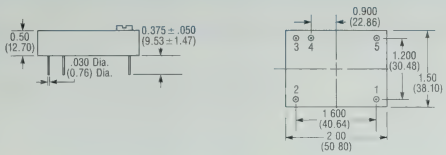
Model	Features	Frequency Range	Frequency Stability vs. Temperature Range	Input Voltage & Current	Output Type	Aging Rate	Frequency Adjustment	Figure
TC2100CV	Requires only 0.35 cu. in. Direct replacement for K1516 Series	6MHz to 24MHz	±2ppm −40°C to +85°C	C Std. @ 15mA max. (B thru F avail.)	N Std. (Harmonics < −20dBc)	1ppm/Yr.	Electrical via Ext. Pot. or control voltage; 5 Yr. Range Minimum	1
TC2110AH	Low cost unit +5VDC operation	5MHz to 18MHz	±1ppm −20°C to +70°C	A Std. @ 15mA max.	H Std.	1ppm/Yr.	Mechanical 10 Yr. Range Minimum	2

TCXO, HIGH FREQUENCY



DIMENSIONS: in. (mm)

PIN	FUNCTION
1	B+
2	Ground
3	Output
4	Ground
5	Ground



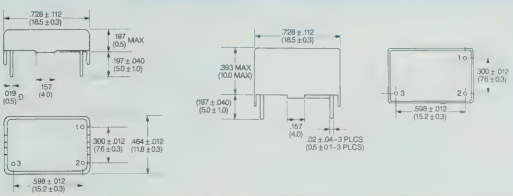
SPECIFICATIONS

Model	Features	Frequency Range	Frequency Stability vs. Temperature Range	Input Voltage & Current	Output Type	Aging Rate	Frequency Adjustment	Figure
TC2170BJ	Small package; Internal freq. multiplier for better stability with fundamental crystal	24MHz to 120MHz	±1ppm −40°C to +70°C	+7.5VDC @ 40mA max.	Sine, +3HBm, 50Ω LOAD	1ppm/Yr.	Mechanical 5 Yr. Range Minimum	3
TC2180BJ	Very small package for UHF TCXO	120MHz to 500MHz	±5ppm −40°C to +70°C	+7.5VDC @ 45mA max.	Sine, +7 HBm, 50Ω LOAD	2ppm/Yr.	Mechanical 5 Yr. Range Minimum	3

TCXO, LOW COST

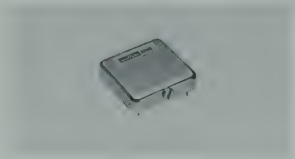
DIMENSIONS: in. (mm)

PIN	FUNCTION
1	Ground
2	Output
3	+DC

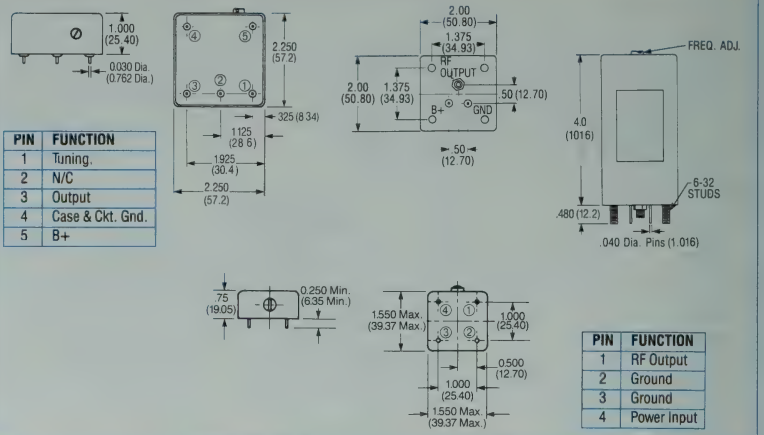


Model	Features	Frequency Range	Frequency Stability vs. Temperature Range	Input Voltage & Current	Output Type	Aging Rate	Frequency Adjustment	Figure
TC3024AR	Low cost	12.8MHz and 15.36MHz	±2.5ppm −30°C to +70°C	5VDC @ 2mA max.	+1Vp-pmin/(DC-CUT) 1Ω to 2Ωh, 110pF,	±1ppm/Yr.	Int. Trimmer	4
TC3025AR	Low cost	8MHz to 26MHz	±2.5ppm −30°C to +70°C	5VDC @ 3mA max.	+1Vp-pmin/(DC-CUT) 1Ω to 2Ωh, 110pF	±1ppm/Yr.	Int. Trimmer	5

OCXO, HIGH STABILITY



DIMENSIONS: in. (mm)



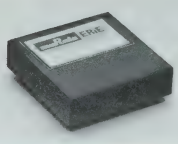
PIN	FUNCTION
1	Tuning.
2	N/C
3	Output
4	Case & Ckt. Gnd.
5	B+

PIN	FUNCTION
1	RF Output
2	Ground
3	Ground
4	Power Input

SPECIFICATIONS

Model	Features	Frequency Range	Input Voltage & Power	Output Type	Electronic Freq. Control and Freq. vs. Voltage Slope	Temperature Stability	Aging	Package	Figure
OC2500EI	Low profile oven	1MHz to 20MHz	+15VDC 1.5W @ 25°C Typ. 4W max. @ turn-on	TTL	±1ppm min. for 0±5v Negative	$\pm1\times10^{-7}$ $-20°C$ to $+70°C$	2×10^{-9}/Day	2.25×2.25×1.00	1
OC2520EK	"SC" or "IT" Cut Crystal For fast warm-up Low phase noise	5MHz to 15MHz	+2.4VDC 3.0W @ 25°C Typ. 15W max. @ turn-on	+7dBm into 50Ω	$\pm1\times10^{-7}$ min. for 0±5v Negative	$\pm5\times10^{-9}$ $-40°C$ to $+75°C$	5×10^{-10}/Day	2.0×2.0×4.0	2
OC2530EJ	VHF frequency coverage	50MHz to 400MHz	+15VDC 3.0W @ 25°C Typ. 9W max. @ turn-on	+3dBm into 50Ω	±3ppm Mechanical	$\pm1\times10^{-7}$ $-20°C$ to $+70°C$	1×10^{-8}/Day	2.0×2.0×4.0	2
OC2540	Miniature package Low power consumption	6MHz to 20MHz	+10VDC 0.3W @ 25°C Typ. 0.6W max. @ turn-on	TTL	±5ppm Mechanical	$\pm2\times10^{-7}$ $-20°C$ to $+50°C$	3×10^{-9}/Day	1.55×1.55×0.75	3

DCXO, SINGLE CHIP



DIMENSIONS:
.79″L × .79″W × .45″H (max.)

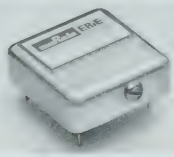
SPECIFICATIONS

Frequency Range: 6MHz to 25MHz
Output: "HC" CMOS
Input Voltage: +5VDC Std.
Input Current: 15mA Typ.
Frequency Adjustment:
To offset at least 10 Yrs. Aging

Frequency Stability: ($\triangle f/f$) vs.:
Temperature: See Table
Input Voltage: $\pm1\times10^{-8}$/%
Load Variation: $\pm1\times10^{-8}$/%
Time: 1ppm/Yr. Typ.
Time After Turn-On: $\pm1\times10^{-7}$ within 5 sec.
Short Term (T=1 sec.): 1×10^{-9}

Model No.	Temp. Range	Max. Freq. Error
DC2210AH	−40°C to +85°C	$\pm1\times10^{-6}$
DC2211AH	−20°C to +75°C	$\pm5\times10^{-7}$
DC2212AH	0°C to +70°C	$\pm3\times10^{-7}$
DC2213AH	0°C to +50°C	$\pm2\times10^{-7}$

DCXO, HIGH STABILITY



DIMENSIONS:
2.0″L × 2.0″W × .5″H (max.)

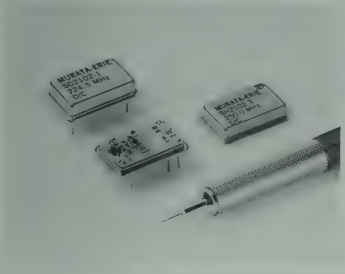
SPECIFICATIONS

Frequency Range: 100KHz to 22MHz
Output: TTL Std.
Output Symmetry: 50/50±5%
Input Voltage: +5VDC
Input Current: 12mA Typ.
Mechanical Frequency Adjustment:
To offset at least 5 Yrs. Aging

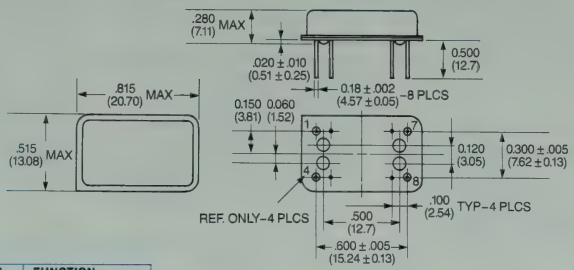
Frequency Stability: ($\triangle f/f$) vs.:
Temperature: See Table
Input Voltage: $\pm1\times10^{-8}$/%
Load Variation: $\pm1\times10^{-8}$/%
Time: $\pm5\times10^{-7}$/Yr. Typ.
Time After Turn-On: $\pm1\times10^{-7}$ within 5 sec.
Short Term (T=1 sec.): 1×10^{-10}

Model No.	Temp. Range	Max. Freq. Error
DC2200AT	−40°C to +85°C	$\pm2\times10^{-7}$
DC2201AT	−20°C to +75°C	$\pm1\times10^{-7}$
DC2202AT	0°C to +70°C	$\pm7\times10^{-8}$
DC2203AT	0°C to +50°C	$\pm5\times10^{-8}$

ECL CLOCK OSCILLATOR



DIMENSIONS: in. (mm)



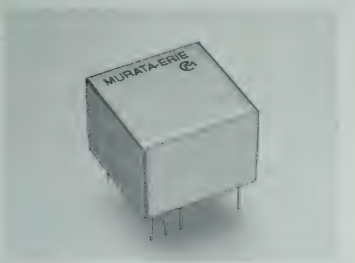
PINS	FUNCTION
1	Output Compliment
7	(Ground) V_{ee}
8	Output
14	+5 V_{cc}
2, 6, 9, 13	Ground

TOLERANCE
.XX ± .02 (0.51)
.XXX ± .003 (0.08)

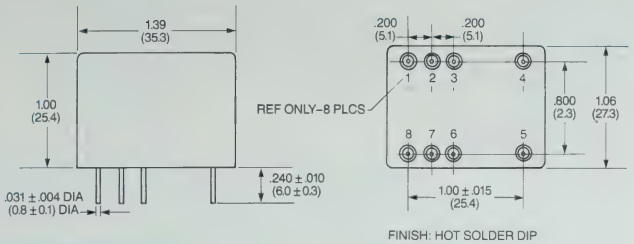
MODEL SH2128AF SPECIFICATIONS

Features	Frequency Range	Stability	Frequency Stability vs. Operating Temp. Range	Duty Cycle	Load	Output Level	Input Voltage & Current Jitter
ECL 100K logic compatible	200MHz to 600MHz	±200ppm	±250ppm Max. 0°C to +70°C	30/50% ± 10% 40% to 60%	50 ohms	ECL "100K" 600mVp-p Min.	3.0VDC @ 120mA Max. (–5.2VDC Optional)

OCXO



DIMENSIONS: in. (mm)



FINISH: HOT SOLDER DIP

TOLERANCES:
.XX ± .01 (0.25)
.XXX ± .008 (0.20)

PIN	FUNCTION
1	Output
4	Ground
2,3,5,7	N/C
6	Control Voltage
8	+12V

SPECIFICATIONS

Features	Frequency	Frequency Stability vs. Temperature	Duty Cycle	Input Voltage & Current	Phase Noise	Output	Freq. Deviation	Control Voltage	Linearity	Mod. Freq.	Resp. Slope
TTL Compatible	8 MHz to 16MHz	±0.05ppm Typical over 0°C to +50°C	50/50 ±10%	+12VDC, 250mA max. 90mA Typ. @ +25°C	10Hz, –120dBc/Hz 100Hz, –138dBc/Hz 1KHz, –148dBc/Hz 10KHz, –150dBc/Hz	TTL. Std.	±4ppm min.	0 to +6V	±20% max.	DC to 1KHz	Positive

DIELECTRIC RESONATOR-BASED PRODUCTS

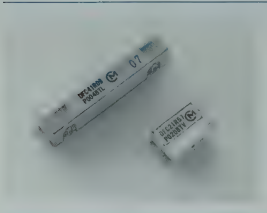
DIELECTRIC RESONATORS (DR)-RESONATORS

Murata Erie offers a complete line of dielectrics with high permittivity that make excellent resonators for microwave oscillators and filters.

TE mode resonators are offered in both disc and coaxial cylinder configurations while TEM mode units are offered in 1/4 and 1/2 wavelength models. Substrates offer high Q's and dielectric constants making them ideal for applications in Microwave Integrated Circuits (MIC).

FEATURES

- 400 MHz to 30 GHz Frequency Range
- High Unloaded Q
- High Dielectric Constant
- Wide Temperature Coefficient Range: −4 to +10 ppm/°C



DUPLEXERS

Murata Erie offers a complete selection of dielectric resonator-based Duplexers. Three versions are included—standard, separated pair and separated.

FEATURES

- Low insertion loss through the use of high Q dielectric resonators.
- Small and light.
- Excellent temperature stability through temperature compensated dielectric constant (0 ±5ppm/°C max.)
- Excellent mechanical stability.
- High power ratings.

DIELECTRIC MICROWAVE FILTER (GIGAFIL®)

Murata Erie offers a wide selection of dielectric resonator-based filters (GigAfils®) specifically designed for telecommunications applications.

These microwave filters are based on Dielectric Resonator technology and cover the frequency range from 400 MHz to 2 GHz. They offer extremely good temperature stability (±5 ppm/°C), high selectivity and low insertion loss. Applications include CMT, GPS, Data Transmission, Navigation Systems, Cordless Telephones, Land Mobile Radio (LMR) and Spread Spectrum Systems.

ISOLATORS

Murata Erie microwave isolators feature small size for surface mounting combined with excellent electrical performance. Typical isolation is 12dB with an insertion loss of 0.9dB. Power ratings 2.5 to 10μ depending on model.

These dielectric resonator devices are used as interstage matching devices to absorb antenna mismatching and maintain stable transmission.

Applications include Cellular Mobile Telephone (CMT), Microwave Test Equipment, etc.

FEATURES

- Power Ratings from 2 to 10 Watts
- 15 dB min. Isolation
- Less than 1 dB Insertion Loss
- Sizes Ranging From 6.9 mm × 6.8 mm × 4 mm to 15 mm × 15 mm × 9 mm
- Surface Mount Packages Available

DIELECTRIC RESONATOR OSCILLATORS (DRO)

A complete line of Dielectric Resonator Oscillators, utilizing Murata Erie resonators, is offered.

These DRO's are ideal for application in Microwave Communications, DBS, TVRO, CATV, Network Analyzers and Satellite Communications.

FEATURES

- 3 GHz to 11.5 GHz Frequency Range
- Typical Frequency Stability of ±1 MHz from −40°C to +60°C
- Typical Power Output of +7 dBm into a 50 Ohm Load
- Case Sizes Ranging from 20 mm × 12 mm × 9.5 mm to 60 mm × 30 mm × 18 mm

VOLTAGE CONTROLLED OSCILLATORS (VCO)

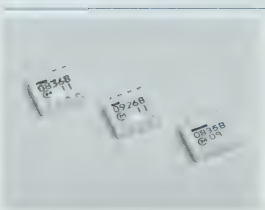
Compact VCO's designed for mobile communications applications are also included in the Murata Erie line of dielectric resonator-based products. These devices are designed for local oscillator use in the high MHz ranges and offer excellent mechanical and frequency stability in very compact packages.

These VCO's also are based on state-of-the-art Murata Erie dielectric materials.

These devices find wide application in Cellular Mobile Telephone (CMT), Data Transmission, Global Positioning System (GPS) and Spread Spectrum Products.

FEATURES

- 400 MHz to 1.5 GHz Frequency Range
- Typical Frequency Stability of ±2 MHz from −35°C to +80°C
- Typical Tuning Range of ±12 MHz



LC FILTERS

A new line of diminutive surface mount LC Filters designed for application from 750MHz to 1.1GHz is now available from Murata Erie. They measure just 5.7mm × 5.7mm × 2mm including integral metal shielding. They require no adjustments and are supplied on tape and reel for auto-placement.

EMI SUPPRESSION FILTERS
SURFACE MOUNT
FERRITE CHIPS

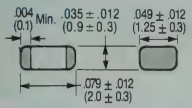
BLM21, BLM31, & BLM41 Series

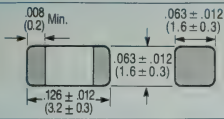
This new series of solid, ferrite chips for surface mount applications is designed to reduce the possibility of spurious oscillation in high frequency amplifying circuits and operate effectively from several MHz to several hundreds of MHz. Because of their small size, they are mountable on 2.5 mm c-c pitch thus saving considerable PCB space.

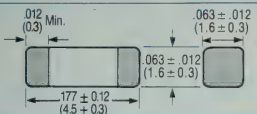
FEATURES

- **Surface mountable on 2.5 mm pitch**
- **No stray capacitance to 1 GHz**
- **Wide temperature range: −55 °C to +125 °C**
- **Effective noise suppression to several hundreds of MHz**
- **Prevents oscillation in HF amplifiers**
- **Nickel barrier for solder heat resistance**
- **Suitable for both flow and reflow soldering applications**

DIMENSIONS: in. (mm)





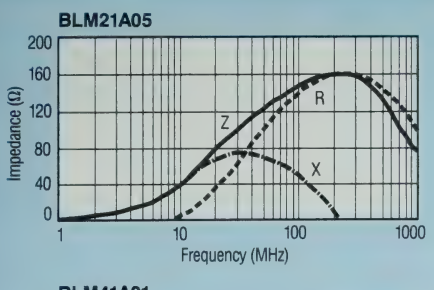


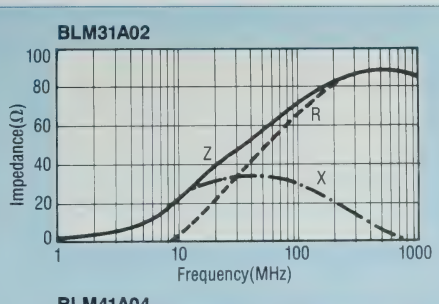
ELECTRICAL CHARACTERISTICS

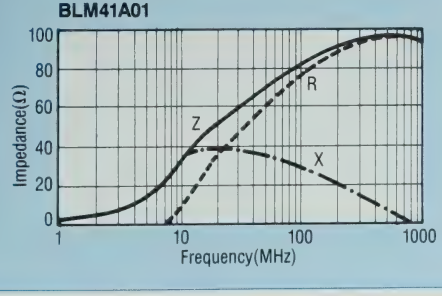
Part Number*	Characteristics		
	Impedance (Ω) (Typ.) at 100MHz	Rated Current (mA)	DC Resistance (Ω max.)
BLM21A05	120	200	0.6
BLM21B03	5 (27 @ 1GHz)	500	0.2
BLM31A02	70	200	0.5
BLM41A01	80	500	0.3
BLM41A04	150	200	0.7

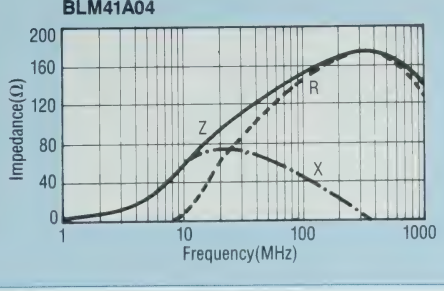
*Suffix = PB = Bulk, Suffix = PT = Tape & Reel

IMPEDANCE VS. FREQUENCY CHARACTERISTICS





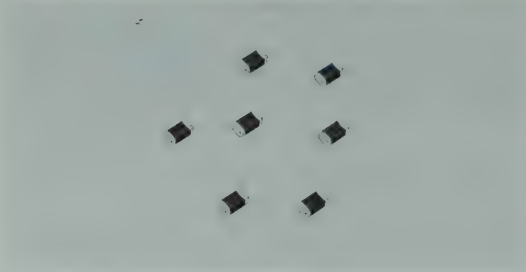




All values are standard through authorized Murata Erie Distributors.

EMI SUPPRESSION FILTERS SURFACE MOUNT FERRITE CHIPS

BLM32 Series



Murata Erie's new BLM32A06 and BLM32A07 are the newest development in the BLM Series of ferrite inductive devices for surface mounting. These new devices can replace inductors in many applications where a series inductor is needed for filtering or RF signal isolation. They provide a very high impedance over the frequency range of from 1 MHz to 500 MHz.

APPLICATIONS

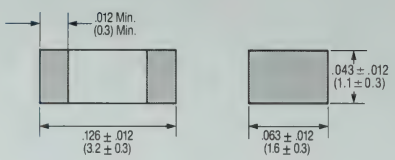
Computers and peripherals, Power supplies, Telephone equipment, Automotive electronics, Consumer electronics.

FEATURES

- **Small Size. Just .126 (3.2) × .063 (1.6) × .043 (1.1) allows .098 (2.5) c-c PCB mounting**
- **Wide Frequency Range...1 MHz to 500 MHz**
- **Operating Temperature −55 °C to + 125 °C**
- **Impedance of BLM32A06 is 6 ohms, BLM32A07 is 40 ohms at 1 MHz. Both feature an impedance over 600 ohms at 100 MHz.**
- **Nickel barrier electrode prevents leaching during soldering.**

DIMENSIONS: in. (mm)

BLM32

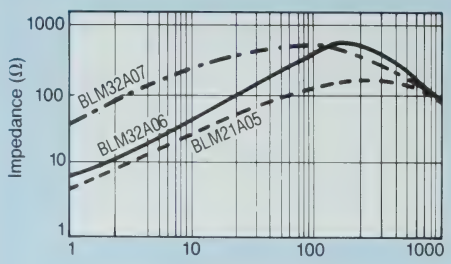


SPECIFICATIONS

Part Number*	Typical Z @ 100 MHz	I (mA)	DC Resistance (Ω) Max.
BLM32A06	600	200	1.0
BLM32A07	600	200	1.0

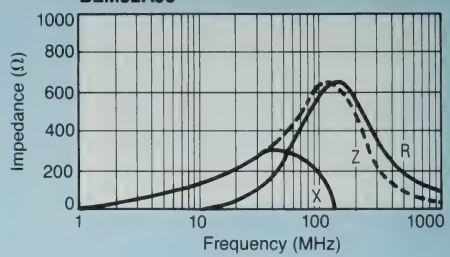
*Suffix=PB=Bulk Suffix=PT=Tape & Reel

COMPARISON OF BLM SERIES DEVICES

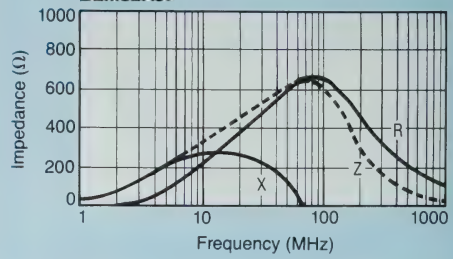


IMPEDANCE VS. FREQUENCY CHARACTERISTICS

BLM32A06

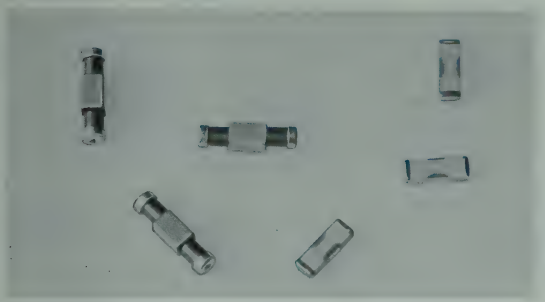


BLM32A07



All values are standard through authorized Murata Erie Distributors.

NFM41R & NFM61R Series



The new NFM Series of surface mount EMI filters are true feed-thru EMI/RFI filters; the NFM41R providing an SM feed-thru capacitor in various values and the NFM61R providing series ferrite bead inductors, in addition to a capacitor, on both the input and output sides of the filters. Applications for these new filters include filtering of DC power lines in all types of data processing and instrumentation equipment because of their high current capacity.

FEATURES

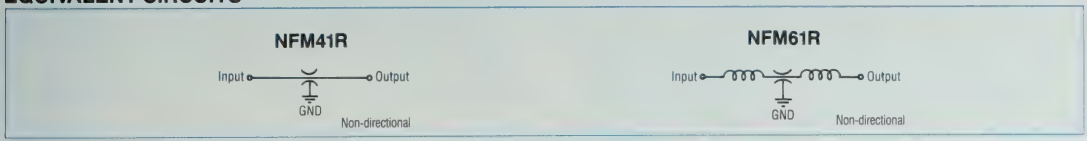
- **Excellent insertion loss characteristics**
- **Wide frequency range of operation...to several hundred MHz**
- **Tape and reeled for auto-placement**
- **High current capability**
- **High solder heat resistance**

SPECIFICATIONS

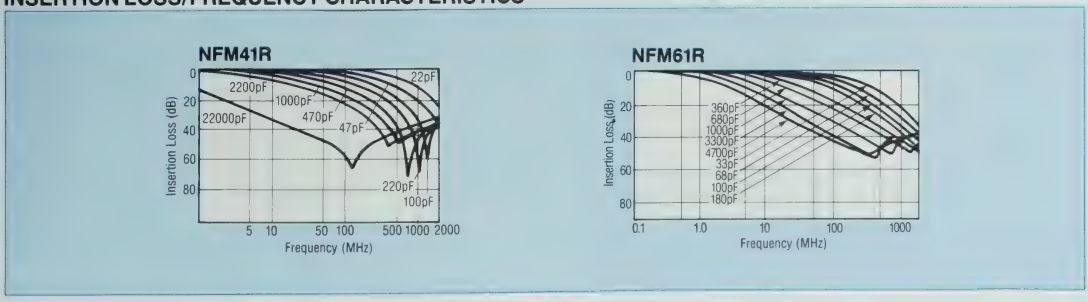
DIMENSIONS: in. (mm)	Part Number*	Capacitance	Insulation Resistance	Rated Voltage	Rated Current	DC Resistance	Operating Temp. Range	Temp. Char.
.004 Min. (0.1 Min.) .05±.012 (1.4±0.3) .004 Min. (0.1 Min.) .04±.012 (1.0±0.3) .18±.012 (4.5±0.3) .063±.012 (1.6±0.3)	NFM41R00C220	22pF±50%	10000MΩ Min.	100V DC	300mA DC	0.3Ω max.	−55°C to +125°C	±15%
	NFM41R00C470	47pF±50%						
	NFM41R00C101	100pF±50%						
	NFM41R00C221	220pF±50%						
	NFM41R00C471	470pF±50%						
	NFM41R10C102	1000pF±50%						
	NFM41R10C222	2200pF±50%						
	NFM41R10C223	22000pF±50%						
.028±.008 (0.7±0.2) .102±.012 (2.6±0.3) .028±.008 (0.7±0.2) .063±.012 (1.6±0.3) .268±.02 (6.8±0.5)	NFM61R00T330	33pF±30%	1000MΩ min.	50V DC	2A DC	0.05Ω max.	−25°C to +85°C	±10%
	NFM61R00T680	68pF±30%						
	NFM61R00T101	100pF±30%						
	NFM61R00T181	180pF±30%						
	NFM61R00T361	360pF±20%						
	NFM61R00T681	680pF±30%						
	NFM61R10T102	1000pF+80% −20%						+20% −55%
	NFM61R20T332	3300pF+80% −20%						+30% −85%**
	NFM61R30T472	4700pF+80% −20%						±20%

*Suffix=B=Bulk Suffix=T=Tape & Reel
**Over temperature range of −10°C to +60°C

EQUIVALENT CIRCUITS



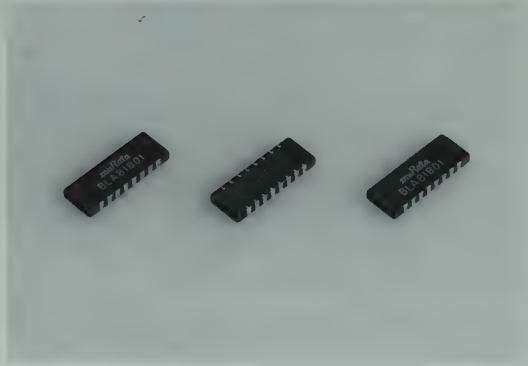
INSERTION LOSS/FREQUENCY CHARACTERISTICS



All values are standard through authorized Murata Erie Distributors: Standard packaging is tape and reel.

EMI SUPPRESSION FILTERS
SURFACE MOUNT
CHIP FERRITE BEAD ARRAY

BLA81 Series



The BLA81 Series is a chip ferrite bead array for surface mounting applications and excellent for high-density mounting with a land pitch of .050 (1.27).
It is well suited for noise suppression in digital circuit boards or the I/O cables of digital instruments.

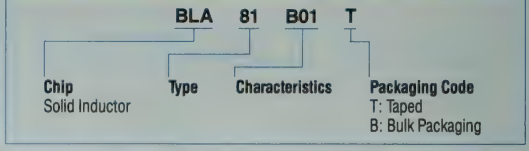
APPLICATIONS
Computers, peripherals, digital TVs, digital VCRs, etc.

FEATURES
- **Excellent for high-density mounting. 8 circuits. Uniform pitch .050 (1.27).**
- **Unique electrode structure provides excellent noise suppression and excellent cross-talk characteristics.**
- **Nickel barrier structure of external electrodes provides excellent solder heat resistance.**
- **Operating Temperature Range: −55°C to +125°C.**

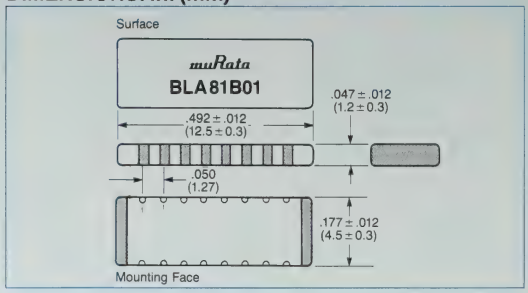
SPECIFICATIONS

Part Number	Impedance (Ω) at 100 MHz	Rated Current	DC Resistance (Ω) Max.
BLA81 B01	70 (Typ.)	300mA	1.0

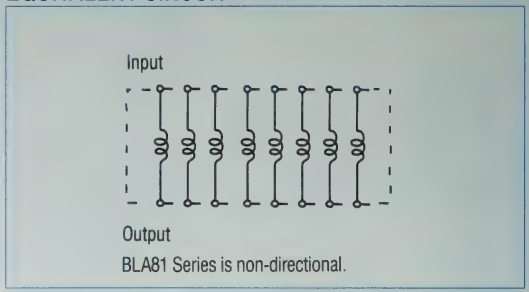
PART NUMBERING



DIMENSIONS: in. (mm)

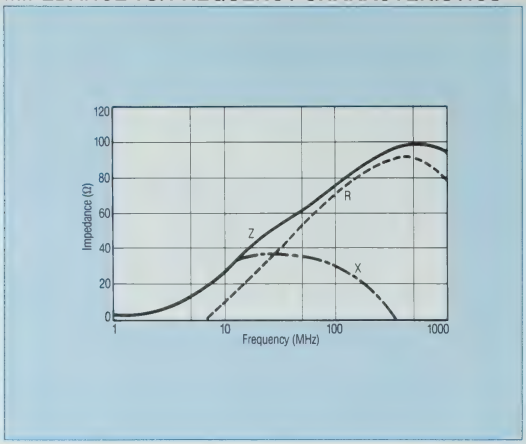


EQUIVALENT CIRCUIT



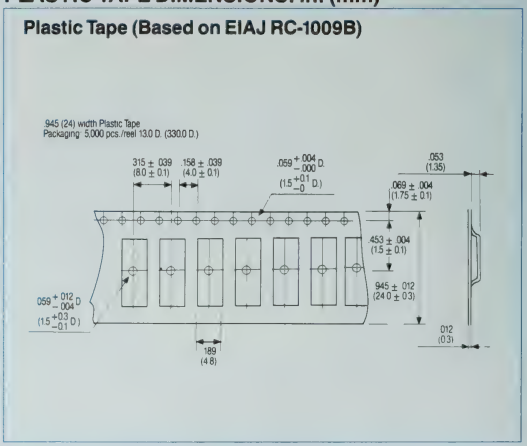
BLA81 Series is non-directional.

IMPEDANCE VS. FREQUENCY CHARACTERISTICS



PLASTIC TAPE DIMENSIONS: in. (mm)

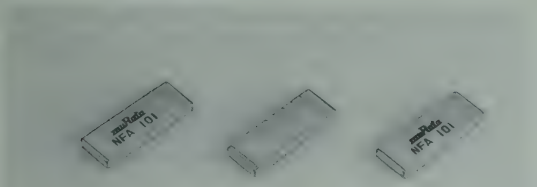
Plastic Tape (Based on EIAJ RC-1009B)



All values are standard through authorized Murata Erie Distributors: Standard packaging is tape and reel.

EMI SUPPRESSION FILTERS
SURFACE MOUNT
FEED-THRU TYPE

NFA81 Series



The NFA81R Series is a chip feed-thru capacitor array filter for surface mounting application and is excellent for high density mounting with a land pitch of .050 (1.27).

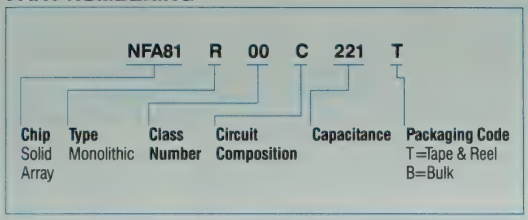
It has only two ground terminals for 8 circuits, therefore it makes it easy to design a ground pattern.

It is well suited for noise suppression in digital circuit boards or in I/O cables of digital instruments.

FEATURES

- **Excellent for high density mounting. 8 circuits. Uniform pitch .050 (1.27).**
- **Unique electrode structure provides excellent noise suppression and excellent cross-talk characteristics.**
- **Just two ground terminals for 8 circuits.**
- **Simple land design makes possible effective EMI suppression with narrow land pitch.**
- **Nickel barrier structure of external electrodes provides excellent solder heat resistance.**
- **Wide variety of capacitance values offered.**

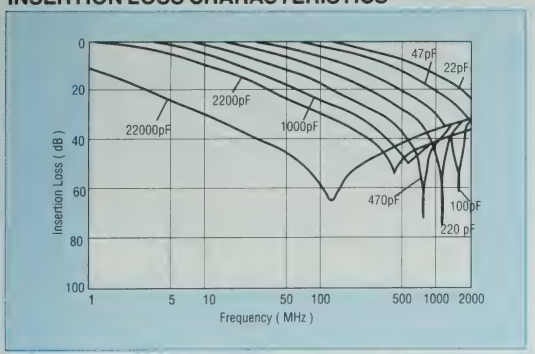
PART NUMBERING



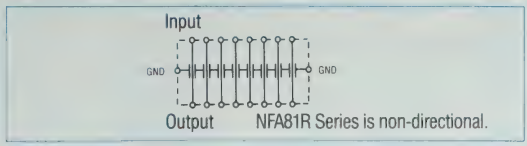
SPECIFICATIONS

Part Number	Capacitance (+50, −20%)	Rated Voltage (VDC)	Rated Current (mADC)	Insulation Resistance (MΩ)	Operating Temperature Range Range (°C)	Temp. Characteristics
NFA81R00C220	22pF	50	300	1000 Min.	−55 to +125	±15% −10°C to +60°C
NFA81R00C470	47pF					
NFA81R00C101	100pF					
NFA81R00C221	220pF					
NFA81R00C471	470pF		200			
NFA81R10C102	1000pF					
NFA81R10C222	2200pF					
NFA81R10C223	22000pF		300			

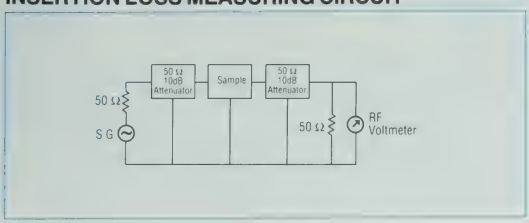
INSERTION LOSS CHARACTERISTICS



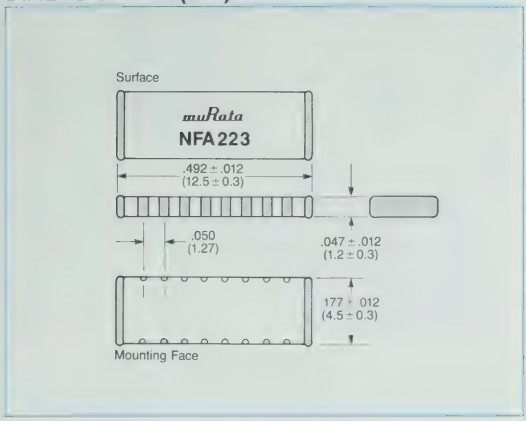
EQUIVALENT CIRCUIT



INSERTION LOSS MEASURING CIRCUIT



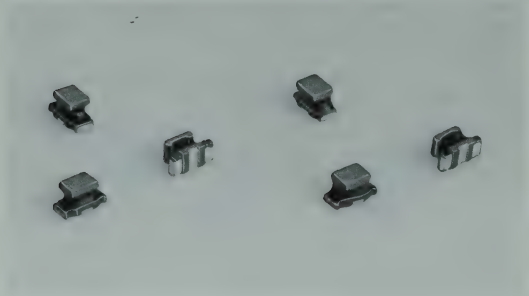
DIMENSIONS: in. (mm)



All values are standard through authorized Murata Erie Distributors: Standard packaging is tape and reel.

EMI SUPPRESSION FILTERS
SURFACE MOUNT CHIP FILTERS

NFM52 Series



The NFM52R Series chip is an efficient signal line noise suppression filter for high-speed digital signal lines where base-band frequencies and noise band frequencies are very close.

Murata Erie has combined its superior ceramic technologies with a unique circuit configuration to realize outstanding noise suppression effect in these applications. The NFM52R Series assures noise reduction to meet the specifications of CISPR, FCC, etc.

APPLICATIONS

Noise suppression for compact digital instruments, laptop personal computers, HDTV, EDTV, portable VTR, etc.

FEATURES

- **Steep attenuation characteristics make this filter most suitable as a suppressor for unwanted radiation in signal lines without attenuating base-band frequencies.**
- **Chip configuration is most suitable for noise suppression in compact digital instruments, etc.**
- **Four types are offered, classified by cut-off frequencies from 10 MHz to 100 MHz.**

PART NUMBERING

NFM52R	00P	106	T
Signal Line Chip	Class Number	Cut-off Frequencies	Packaging Code T: Tape & Reel

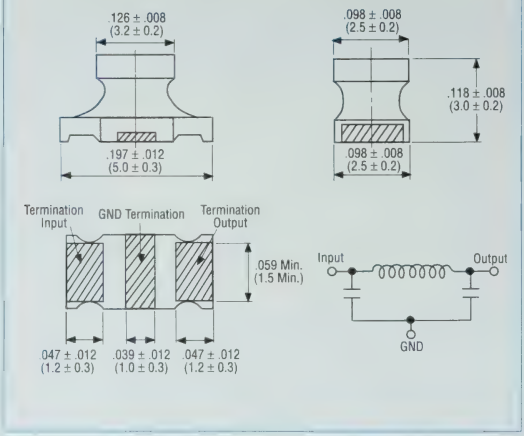
RATING CHARACTERISTICS

Operating Temperature Range: −25°C to +85°C

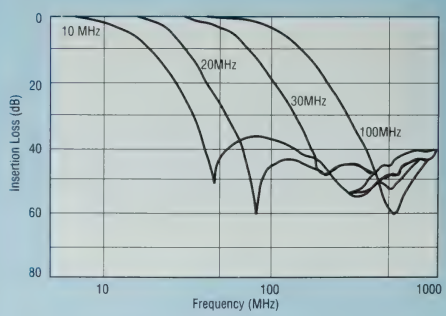
Part Number	Cut-off Frequency (MHz)	Insertion Loss (dB)						Rated Voltage (VDC)	Rated Current (mA)
		10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz		
NFM52R00P106	10	*	5	30	30	35	35	50	200
NFM52R10P206	20	—	*	20	30	35	35	50	200
NFM52R20P506	50	—	—	*	10	35	35	50	200
NFM52R30P107	100	—	—	—	*	10	35	50	200

*6dB Max.

DIMENSIONS: in. (mm)

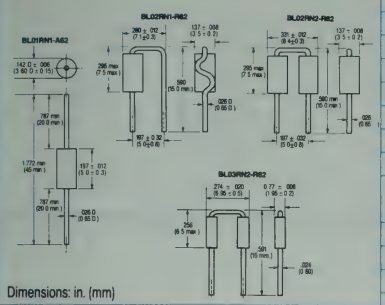


INSERTION LOSS CHARACTERISTICS



All values are standard through authorized Murata Erie Distributors: Standard packaging is tape and reel.

FERRITE BEAD INDUCTORS — Series BL01 and BL02



Dimensions: in. (mm)

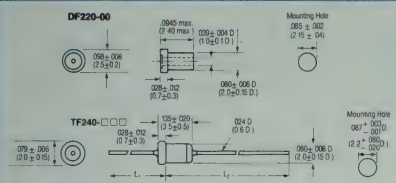
ELECTRICAL CHARACTERISTICS

Item		Characteristics
Permeability	(μi)	550
Saturation Magnetic	(Bs)	3100 (gauss)
Residual Magnetic Flux Density	(Brs)	600 (gauss)
Coercive Force	(Hc)	0.3 (Oe)
Curie Point	(Tc)	130 (°C)
Temp. Coefficient	(∝μr)	20×10^{-6}
Relative Loss Factor	(DF/μi)	13×10^{-6}
		0.5 (MHz)
Resistivity	(ρ)	10^{7} (Ω·cm)
Rated Current	BL01 and BL02 (A)	7 A max.
	BL03	6 A max.

Part Number	Form
* BL01RN1-A62	Axial Single bead
* BL01RN1-A62T5*	Axial Single bead, Taped
* BL02RN1-R62	Radial Single bead
* BL02RN2-R62	Radial Double bead
* BL02RN1-R62T2*	Radial Single bead, Taped
* BL02RN2-R62T2*	Radial Double bead, Taped
* BL03RN2-R62	Radial Double bead
* BL03RN2-R62T2*	Radial Double Bead, Taped

Environmental: Operating Temperature: -25°C to +85°C

FEED-THRU CAPACITORS — Series DF220 & TF240



Dimensions: in. (mm)

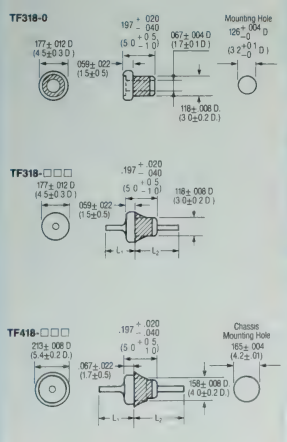
Part Number	L_1	L_2
TF240-601	.394±.039 (10±1.0)	.787±.079 (20±2.0)
TF240-602	.197±.039 (5±1.0)	.472±.039 (12±1.0)
TF240-603	.197±.039 (5±1.0)	.276±.039 (7±1.0)

SPECIFICATIONS

Part Number*	Cap. Value	Cap. Tol.	WVDC	DWV	Insertion Loss at 25°C 10MHz	100MHz	1GHz
DF220-00SL020U50	2pF	+0-100%	50V	250V	—	—	—
DF220-00B121M50	120pF	±20%	50V	250V	—	3	20
DF220-00B221M50	220pF	±20%	50V	250V	—	7	25
DF220-00B471M50	470pF	±20%	50V	250V	—	12	30
DF220-00E102Z50	1000pF	+80 -20%	50V	250V	3	18	35
DF220-00SS152GMV50	1500pF	+200 -0%	50V	250V	5	20	40
TF240-□□□B331M50V	330pF	±20%	50V	250V	—	10	27
TF240-□□□SS332Z50V	3300pF	+80 -20%	50V	250V	10	25	45
TF240-□□□SL220M50V	22pF	±20%	50V	250V	—	—	7
TF240-□□□SL020D50V	2pF	±0.5pF	50V	250V	—	—	—

For other capacitance values consult factory.
*Operating Temp. Range: -25°C — +85°C *Insulation Resistance: 100MΩ min.
*□□□—See DIMENSIONS

FEED-THRU CAPACITORS — Series TF318 and TF418



DIMENSIONS: In. (mm)

Type	Lead Dia	L_1	L_2
TF318-850	.032 (0.8)	.984±.079 (25.0±2.0)	1.18±.079 (30.0±2.0)
TF318-853		.551±.040 (14.0±1.0)	.591±.040 (15.0±1.0)
TF318-855		.374±.020 (9.5±0.5)	.433±.020 (11.0±0.5)
TF318-053	.040 (1.0)	.433±.040 (11.0±1.0)	.650±.040 (16.5±1.0)
TF318-055		.276±.028 (7.0±0.7)	.244±.028 (6.2±0.7)
TF318-450	.055 (1.4)	.177 (4.5)	.295±.040 (7.5±1.0)
TF318-452		.276±.040 (7.0±1.0)	.354±.040 (9.0±1.0)
TF418-452	.055 (1.4)	.283±.040 (7.2±1.0)	.347±.040 (8.8±1.0)
TF418-454		.402±.040 (10.2±1.0)	.543±.040 (13.8±1.0)

SPECIFICATIONS

Part Number	Cap.	Cap. Tol.	Temp. Char.	Rated Volt.
TF318-□SL100G50V	10pF	±2pF	SL	50VDC
TF318-□SL220M50V	22pF	±20%	SL	50VDC
TF318-□SL330M50V	33pF	±20%	SL	50VDC
TF318-□SL470M50V	47pF	±20%	SL	50VDC
TF318-□YN101M50V	100pF	±20%	YN	50VDC
TF318-□B271M50V	270pF	±20%	B	50VDC
TF318-□B471M50V	470pF	±20%	B	50VDC
TF318-□E102GMV50V	1000pF	+80 -20%	E	50VDC
TF318-□E152P50V	1500pF	+100 -0%	E	50VDC
TF418-□E102MV300V	1000pF	+20 -0%	E	300VDC
TF418-□E152P300V	1500pF	+100 -0%	E	300VDC

□ Denotes configurations shown above.
Examples:
T318-450B271M50V
T418-452E102GMV300V

PART NUMBERING SYSTEM

TF318-450 E 102 GMV 50V

Type and Dimensions
Temperature Characteristics

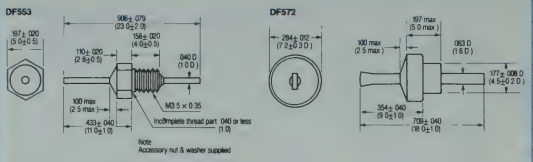
Code	Max. Cap. Change	Temp. Range
B	±10%	-25°C — +85°C
E	+20/-55%	-25°C — +85°C

Code	Temp. Coefficient
SL	+350— -1000 ppm/°C
YN	-500— -5800 ppm/°C

Rated Voltage
50V and 300V*
*Available only in the TF418 Series
Cap. Tolerance
Nominal Capacitance

★Available as standard through authorized Murata Erie Distributors.

FEED-THRU CAPACITORS — Series DF553 and DF572



Dimensions: in. (mm)

SPECIFICATIONS

	DF553F102P50	DF572-10F102P500
Cap. Value	1000pF	1000pF
Cap. Tolerance	+100/-0%	+100/-0%
Rated Voltage	50VDC	500VDC
Dielectric Strength	125VDC	1250VDC
Insulation Resistance	10000MΩ	10000MΩ
Temp. Characteristic	+30/-80%	+30/-80%
Max. Feed-Thru Current	10A DC	10A DC
Operating Temp. Range	-25°C to +85°C	-25°C to +85°C

EMI SUPPRESSION FILTERS

SERIES DS310, DST310 and DSS310

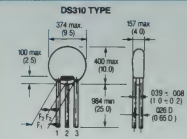


Figure 1

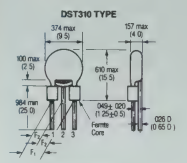


Figure 2

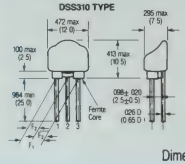


Figure 3

Dimensions: in. (mm)

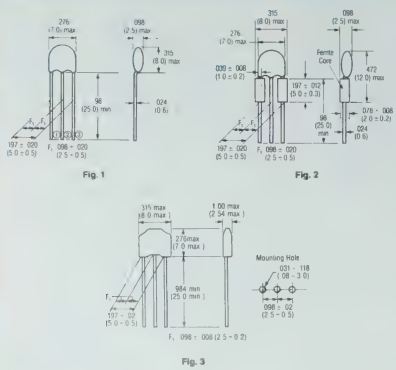
SPECIFICATIONS

Part Number	Rated Current (Between Terminal)	Capacitor: Capacitance	Capacitor: W.V.	Capacitor: T.C.	Ferrite Core	Configuration: Dimension	Configuration: Lead Spacing F_2
★DS310-55Y5S271M	7A max.	270pF±20%	100V	±22%	None	Fig. 1	.098 (2.5)
★DS310-55Y5S222M		2200pF±20%	100V				
★DS310-55Y5S223S		22000pF +80 -20%	50V				
★DS310-55D104M16V		100,000pF	16V	+80 -20%			
★DST310-55Y5S271M	7A max.	270pF±20%	100V	±22%	Externally Mounted	Fig. 2	.098 (2.5)
★DST310-55Y5S222M		2200pF±20%	100V				
★DST310-55Y5S223S		22000pF +80 -20%	50V				
★DSS310-55Y5S220M	7A max.	22pF±20%	100V	±22%	Internally Contained	Fig. 3	.098 (2.5)
★DSS310-55Y5S470M		47pF±20%	100V				
★DSS310-55Y5S101M		100pF±20%	100V				
★DSS310-55Y5S271M		270pF±20%	100V				
DSS310-55Y5S222M		2200pF±20%	100V				
DSS310-55Y5S223S		22000pF +80 -20%	50V				

FOR AUDIO CIRCUITS (LOW DISTORTION TYPE)

Part Number	Rated Current (Between Terminal)	Capacitance	W.V.	T.C.	Ferrite Core	Configuration: Dimension	Configuration: Lead Spacing F_2
DSS310-55BL222M	7A max.	2200pF±20%	100V	±10%	Internally Contained	Fig. 3	.098 (2.5)
DSS310-55DL223S		22000pF +80 -20%	50V	+80 -20%			

SERIES DS306. DSS306, DST306



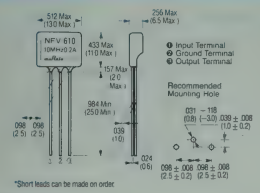
Dimensions: in. (mm)

- Coating extensions do not exceed the tangent line. Exposed electrode, if any, is covered by soldering, etc.
- Leads with length shorter than standard length are available when required. Contact us for further details.

Part Number	Capacitor: Capacitance	Capacitor: Rated Volt.	Capacitor: Temp. Char.	Ferrite Beads	Dimension
★DS306-55Y5S470M	47pF ± 20%	50VDC	±22%	None	Fig. 1
★DS306-55Y5S101M	100pF ± 20%		±22%		
★DS306-55Y5S271M	270pF ± 20%		±22%		
★DS306-55Y5S102M	1000pF ± 20%		±22%		
★DS306-55Y5S222M	2200pF ± 20%		±22%		
★DS306-55FZ103Z	10000pF + 80%, -20%		+30%, -85%		
★DST306-55Y5S470M	47pF ± 20%	50VDC	±22%	Outside	Fig. 2
★DST306-55Y5S101M	100pF ± 20%		±22%		
★DST306-55Y5S271M	270pF ± 20%		±22%	Outside	
★DST306-55Y5S102M	1000pF ± 20%		±22%		
★DST306-55Y5S222M	2200pF ± 20%		±22%		
★DST306-55FZ103Z	10000pF + 80%, -20%		+30%, -85%		
★DSS306-55Y5S470M	47pF ± 20%	100VDC	±22%	Inside	Fig. 3
★DSS306-55Y5S101M	100pF ± 20%		±22%		
★DSS306-55Y5S271M	270pF ± 20%		±22%		
★DSS306-55Y5S471M	470pF ± 20%		±10%		
★DSS306-55Y5S102M	1000pF ± 20%		±22%		
★DSS306-55Y5U222Z	2200pF + 80%, -20%		+22%, -56%		
★DSS306-55FZ103N	10000pF ± 30%		+30%, -85%		

★Available as standard through authorized Murata Erie Distributors.

SERIES NFV610



*Short leads can be made on order.

Dimensions: in. (mm)

SPECIFICATIONS

Part Number	Cut-Off Frequency	Minimum Attenuation (dB)					
		10MHz	20MHz	50MHz	100MHz	200MHz	500MHz
NFV610-655 T2A 106	10MHz	*	3	10	20	35	25
NFV610-655 T2A 206	20MHz		*	3	10	15	25
NFV610-655 T2A 506	50MHz			*	3	10	25
NFV610-655 T2A 107	100MHz				*	3	15

*6dB max

Rated Voltage: 100 VDC, Rated Current: 200mA
Temperature Range: –25°C to +85°C

EMI-GUARD VARISTOR-CAPACITOR — Series DSS710

Dimensions: (in. (mm)

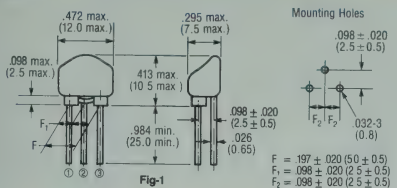


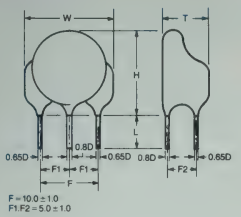
Fig-1

F = .197 ± .020 (5.0 ± 0.5)
F1 = .098 ± .020 (2.5 ± 0.5)
F2 = .098 ± .020 (2.5 ± 0.5)

Part No.	DSS710 D 223S 12-22
Capacitance	22000pF $^{+50}_{-20}$ %
DF	5.0% max.
Insulation Resistance	1 MΩ min.
I_C (max.)	7 A max.
Rated Voltage	12 VDC
Varistor Voltage	22 VDC ± 20%
Voltage Nonlinear Factor	1.25 max. (V10mA/V1mA)
Temperature Characteristics	$^{+20}_{-30}$ % (–25 to +85°C)
Operating Temperature Range	–40 to +100°C
Inductance	0.8μH × 2 (1 KHz)

AC THREE TERMINAL CAPACITOR

Dimensions: (mm)



DIMENSIONS: mm

Part Number	W	H	T	L
DSR1100	16.0 max.	15.0 max.	11.0 max	6.0
DSR1120	16.0 max.	17.0 max.	11.0 max	
DSR1150	18.0 max.	22.0 max.	11.0 max	

RATINGS

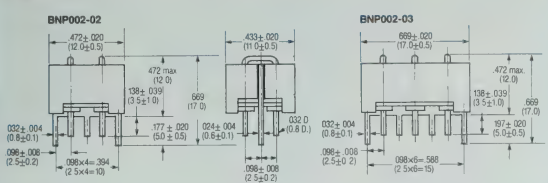
Item	Ratings
Rated Current	7 A (AC)
Insulation Resistance	10000 MΩ min.
Operating Temperature Range	–25 to +85°C

Part Number	Temp. Char.	Cap. Value (pF)	Cap. Tol. (%)	Recognized Standards UL 1414	CSA C22.2 No. 1	VDE 565-1	Rated Voltage
DSR1100-56 E222M VA2-EA	E	2200	±20	♣	♣	♣	VA2
DSR1120-56 E302M VA2-EA	E	3000	±20	♣	♣	♣	VA2
DSR1150-56 E472M VA2-EA	E	4700	±20	♣	♣	♣	VA2
DSR1100-56 FZ472P AC125-EA	FZ	4700	±100/0	♣	♣	—	125 VAC

VA2: for VDE565-1 ...250VAC
for UL1414, CSA C22.2 No. 1...125VAC

EMI SUPPRESSION FILTERS — 15MHz to 1GHz — BNP002/004

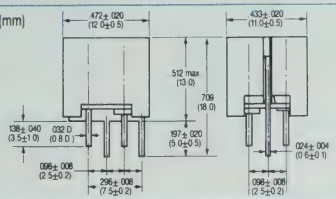
Dimensions: in. (mm)



Item	Specifications		
Part Number	BNP002-02	BNP002-03	BNP004-02
Number of Circuits	2	3	2
Circuit Construction	π		
Operating Temperature Range	–50°C to +100°C		
Rated Voltage	50VDC		
Withstand Voltage	300VDC		125VDC
Maximum Current Capacity	10ADC		
Insulation Resistance	1,000 MΩ min.		
DC Resistance	0.05 Ω max., (20°C to 25°C)		
Insertion Loss	20MHz to 500MHz: 40dB (20°C to 25°C) min.		300MHz to 1GHz 40dB min.

EMI SUPPRESSION FILTERS — 0.5MHz to 1GHz — BNX002/003

Dimensions: in. (mm)

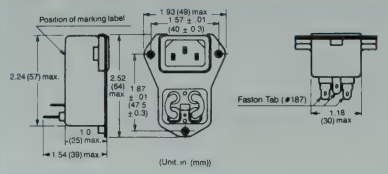


Item	Specifications	
Part Number	BNX002-01	BNX003-01
Operating Temperature Range	–30°C to +85°C	
Rated Voltage	50VDC	150V
Test Voltage	125VDC	375V
Maximum Current Capacity	10ADC	
Insulation Resistance	100MΩ min.	
Insertion Loss	1MHz to 1GHz: 40dB min. (20°C to 25°C) (line impedance = 50Ω)	5MHz to 1GHz 40dB min.

All values are standard through authorized Murata Erie Distributors.

NOISE FILTERS — PLI-C

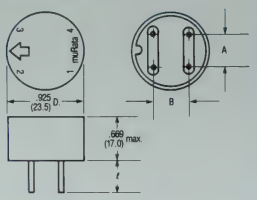
Dimensions: in. (mm)



Part Number	Circuit Composition		Leakage Current (mA max.)	Insertion Loss (dB)			
	Across-the-line Capacitor	Discharge Resistor		Line to ground (MHz) 10	30	100	300
PLI-C1020	inside	none	0.4	14	30	30	20
PLI-C1030			0.5	17	36	30	20
PLI-C1040			0.8	29	40	30	20
PLI-C1050			1.0	23	40	30	20
PLI-C1060			2.0	30	40	30	20

NOISE FILTERS — COMMON MODE CHOKE COIL — Series FKOB

Dimensions: in (mm)

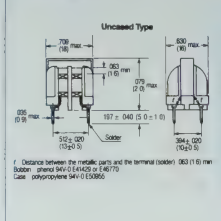


Part Number	Inductance (μH)	RDC (mV)	Rated Volt. (V AC)	Rated Current (Arms)	Freq. at Self-Resonance (MHz)	Lead Pitch A/B	Lead Length ℓ
FKOB160MH02*	≥ 250	< 50	125 (250)	2.5	5	.315(8) / .394(10)	.394(10)
FKOB160MH06	≥ 250	< 50	125 (250)	2.5	5	.512(13) / .394(10)	.177(4.5)
FKOB160MH25*	≥ 600	< 80	125 (250)	2.5	4	.315(8) / .394(10)	.394(10)
FKOB160MH13*	≥ 600	< 80	125 (250)	2.5	4	.512(13) / .394(10)	.177(4.5)
FKOB160MH23*	≥ 800	< 80	125 (250)	2.5	3.5	.315(8) / .394(10)	.394(10)
FKOB160MH14	≥ 800	< 80	125 (250)	2.5	3.5	.512(13) / .394(10)	.177(4.5)
FKOB160MH26*	≥1000	<100	125 (250)	1.5	2.5	.315(8) / .394(10)	.394(10)
FKOB160MH16	≥1000	<100	125 (250)	1.5	2.5	.512(13) / .394(10)	.177(4.5)
FKOB160MH24*	≥1500	<120	125 (250)	1.5	1.5	.315(8) / .394(10)	.394(10)
FKOB160MH15*	≥1500	<120	125 (250)	1.5	1.5	.512(13) / .394(10)	.177(4.5)

*Standard units

NOISE FILTERS COMMON MODE CHOKE COIL — Series PLA

Dimensions: in. (mm)


Uncased Type
.709 (18) max
.630 (16) max
.063 (1.6)
.079 (2.0) max
.035 (0.9) max
197 ± .040 (5.0 ± 1.0)
.512 ± .020 (13 ± 0.5)
Solder
.394 ± .020 (10 ± 0.5)
ℓ : Distance between the metallic parts and the terminal (solder) .063 (1.6) min
Bobbin phenol 94V-0 E44429 or E46770
Case polypropylene 94V-0 E50855

ELECTRICAL SPECIFICATIONS

Item	Ratings
Rated Voltage	250VAC
Dielectric Strength (between coils)	2000VAC 1
Insulation Resistance	100MΩ min.
Operating Temperature Range	-25°C to +85°C
Temp. Characteristics Inductance	20° +80 -40 %(-25°C to +85°C)
Special Test	No abnormality against heat cycle, humidity, low temperature and high temperature.
Mechanical Strength	Stand the static load of pin strength 1kg.

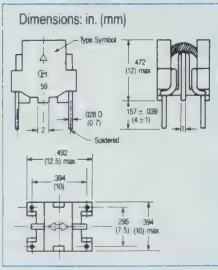
SPECIFICATIONS

Type	Inductance (mH) min.	Rated Current (Arms)	DC Resistance (Ω) max.	Self-Resonant Frequency* (MHz)
* PLA1021A	1.0	1	0.25	1.4
* PLA2021A	2.0	1	0.30	1.0
* PLA3021A	3.0	1	0.35	0.8
* PLA1022A	1.0	2	0.15	1.6
* PLA1522A	1.5	2	0.20	1.4

*Self-resonant frequency is typical value. • Casing type is shown by the suffix as PLA□□□□C.

EMI SUPPRESSION FILTERS COMMON MODE CHOKE COIL — Series PLT

Dimensions: in. (mm)



TYPES

Part Number	Inductance (μH) min.	Self-Resonant Frequency (MHz)	Code
* PLT0R53C	0.5	1000 min.	B
* PLT1R53C	1.5	250	A
* PLT2O03C	20.0	10	C

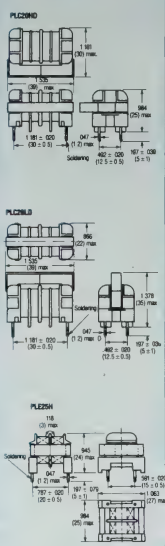
SPECIFICATIONS

Item	Rating
Rated Voltage	50VDC
Rated Current	3A
Withstand Volt.	200VAC 1 min. (between coils)
Operating Temp. Range	-25°C to +60°C

★Available as standard through authorized Murata Erie Distributors.

NOISE FILTERS COMMON MODE CHOKE COIL — Series PLC/PLE

Dimensions: in. (mm)



SPECIFICATIONS

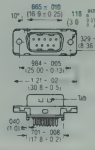
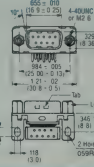
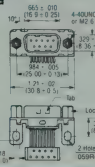
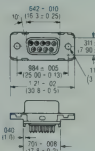
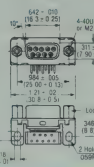
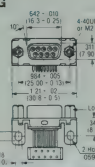
Part Number	Inductance (mH) min.	Rated Current (Arms)	DC Resistance (Ω) max.	Self-Resonant Frequency (MHz)*
PLC20HD-7030R5	70	0.5	3.0	0.1
PLC20HD-3031R	30	1.0	1.0	0.2
PLC20HD-1131R5	11	1.5	0.4	0.3
PLC20HD-6522R	6.5	2.0	0.2	0.4
PLC20HD-3023R	3	3.0	0.1	0.7
PLC20LD-7030R5	70	0.5	3.0	0.1
PLC20LD-3031R	30	1.0	1.0	0.2
PLC20LD-1131R5	11	1.5	0.4	0.3
PLC20LD-6522R	6.5	2.0	0.2	0.4
PLC20LD-3023R	3	3.0	0.1	0.7
PLE25H3030R5	30	0.5	1.2	0.1
PLE25H2230R7	22	0.7	1.0	0.1
PLE25H-1531R	15	1.0	0.7	0.1
PLE25H-1131R3	11	1.3	0.6	0.15
PLE25H-8021R5	8	1.5	0.4	0.2
PLE25H-3022R	3	2.0	0.2	0.25
PLE25H-2023R	2	3.0	0.1	0.4

*The self-resonant value is the typical value.

ELECTRICAL RATINGS

Item	Rating
Rated Voltage	250VAC
Withstand Volt. (between coils)	One minute at 2000VAC
Insulation Resistance (between coils: 500VDC)	100MΩ min.
Operating Temp. Range	-25°C to +60°C
Temp. Char. (Inductance)	20°C +80 -50 % at the above temp.

EMI SUPPRESSION D-CONNECTORS (Low Cost Type) — (CUBL09 SERIES) Dimensions: mm

	STRAIGHT	RIGHT ANGLE	RIGHT ANGLE (American Foot Print)
PIN	*CUBL09PP 	CUBL09PG 	CUBL09PG 
SOCKET	*CUBL09SP 	CUBL09SG 	CUBL09SG 

SPECIFICATIONS

Number of Lines	9
Operating Temp.	−25°C to +85°C
Rated Voltage	100VDC
Test Voltage	250VDC
Rated Current	5A max.
Insulation Resistance	1000MΩ min.
Insertion Loss	30dB/100MHz (2000pF)* min.
D.F.	5% max.

*Other capacitance, 1000pF, 500pF and 250pF lower than 2000pF is also available.

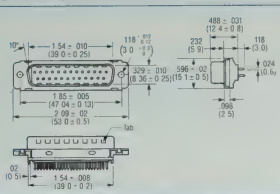
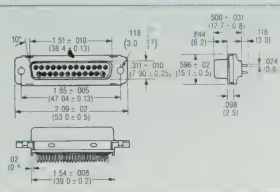
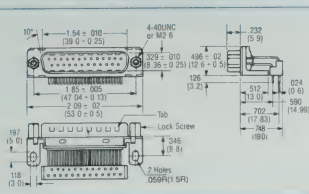
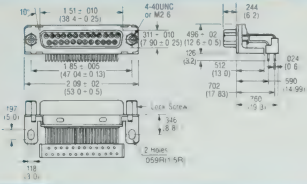
PART NUMBERING SYSTEM

CUBL 09 S P 09 C 001

- **D-CONNECTOR**
- **SHELL SIZE:** 9 lines
- **CONTACT TYPE**
  P: Pin contact S: Socket contact
- **TERMINAL DESIGN** (PCB side)
  P: Straight terminal
  G: Right angle terminal
  N: North American Foot Print
- **NUMBER OF FILTERED LINES**
  Filters may be incorporated on any line as per customer's specification.
- **FILTER TYPE** (Capacitor)

Cap. No.	Cap. Value
001	2000pF (+125/−25%)
002	1000pF (+80/−20%)
003	500pF (±30%)
004	250pF (±30%)
005	120pF (±30%)
006	43pF (±30%)

EMI SUPPRESSION D-CONNECTOR CUBL25 SERIES

*PP TYPE		*SP TYPE	
PN TYPE		SN TYPE	

SPECIFICATIONS

Number of Lines	25
Operating Temp.	−25°C to +85°C
Rated Voltage	100VDC
Test Voltage	250VDC
Rated Current	5A max.
Insulation Resistance	1000MΩ min.

PART NUMBERING SYSTEM

CUBL 25 P N 25 C 001

- **CONNECTOR TYPE**
- **NUMBER OF LINES**
  9 lines
  25 lines
- **MATING**
  P=Plug, S=Socket
- **CONFIGURATION**
  P=Straight
  G=Right angle
  (Standard—same as unfiltered D Connector)
  N=Right angle
  (North American Footprint)
- **NUMBER OF FILTERED LINES**
- **MOUNTING HARDWARE**

Cap. Value	Tolerance
001-2000pF	−25%, +125%
002-1000pF	−20%, +80%
003- 500pF	+30%
004- 250pF	+30%
005- 120pF	+30%
006- 43pF	+30%

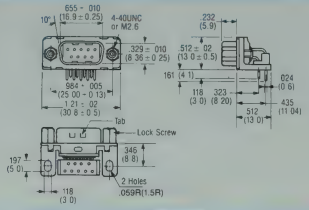
★Available as standard through authorized Murata Erie Distributors.

DIMENSIONS: in. (mm)

PIN

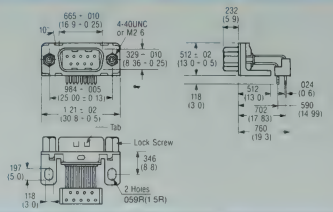
RIGHT ANGLE (STANDARD)

***CUBM09PG**



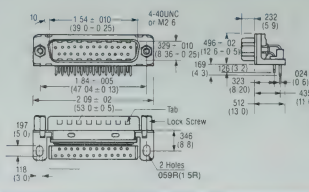
RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

CUBM09PN



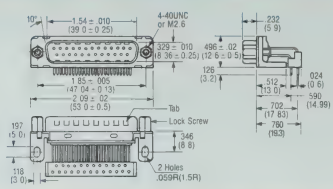
RIGHT ANGLE (STANDARD)

***CUBM25PG**



RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

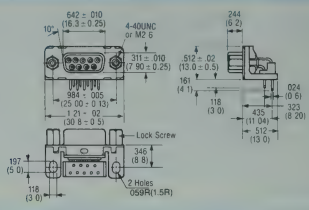
CUBM25PN



SOCKET

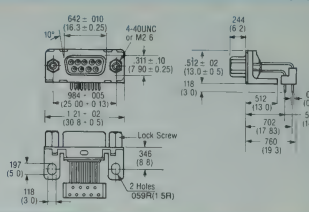
RIGHT ANGLE (STANDARD)

***CUBM09SG**



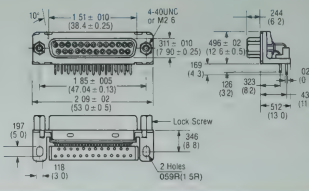
RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

***CUBM09SN**



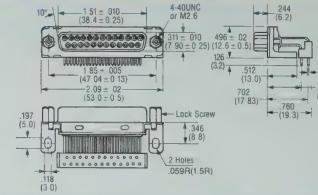
RIGHT ANGLE (STANDARD)

***CUBM25SG**



RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

***CUBM25SN**



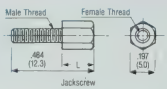
PART NUMBERING SYSTEM

CUBM 25 P N 25 C 002 NC

Connector Type
Number of Lines
9 Lines
15 Lines
25 Lines
Mating
P—Plug
S—Socket
Configuration
P=Straight (15 lines only)
G=Right Angle (Std.)
N=Right Angle
(North American Footprint)
Number of Filtered Lines
Filter Type
C=Capacitor

Capacitance Value	Tolerance
001—2000 pF	−25%, +125%
002—1000 pF	−20%, +80%
003— 500 pF	±30%
004— 250 pF	±30%
005— 120 pF	±30%
006— 43 pF	±30%

Mounting Hardware



Available in Right Angle Configuration

Jackscrew	Male Thread	Female Thread	L in. (mm)
Blank	M2.6	M2.6	.248 (6.3)
D	4-40 UNC	4-40 UNC	.248 (6.3)
E	M2.6	M2.6	.189 (4.8)
NA	Without Lockscrew, Rear Shell M2.6 Female Thread		
NC	Without Lockscrew, Rear Shell 4-40 UNC Female Thread		

SPECIFICATIONS

Number of Lines	9, 15, 25
Operating Temperature	−25°C to +85°C
Rated Voltage	100VDC
Test Voltage	250VDC
Rated Current	5A max.
Insulation Resistance	1000MΩ min.

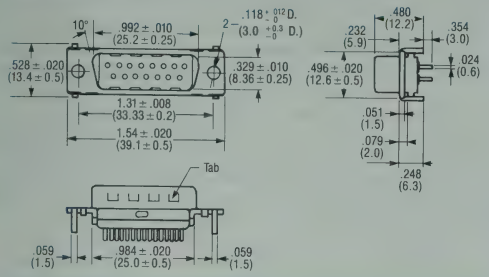
★Available as standard through authorized Murata Erie Distributors.

DIMENSIONS: in. (mm)

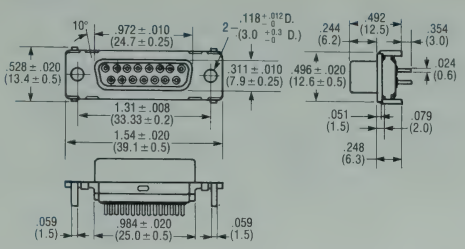
PIN	SOCKET

STRAIGHT

CUBM15PP

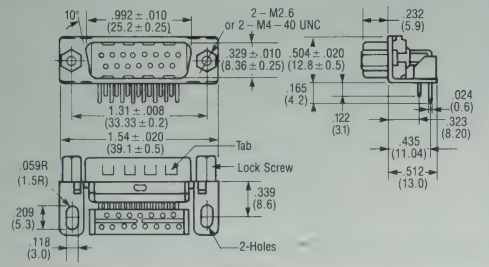


***CUBM15SP**



RIGHT ANGLE (STANDARD)

***CUBM15PG**



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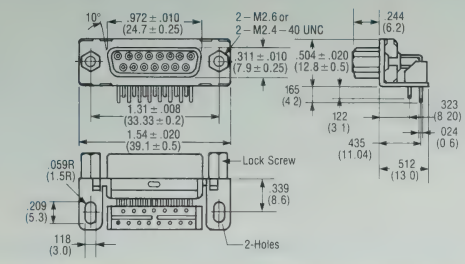
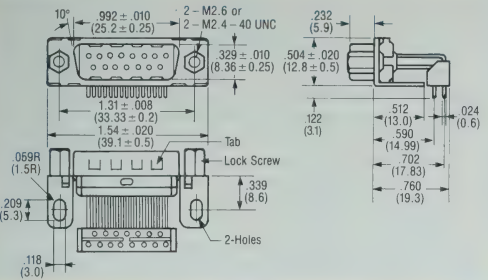


RIGHT ANGLE (NORTH AMERICAN FOOTPRINT)

CUBM15PN



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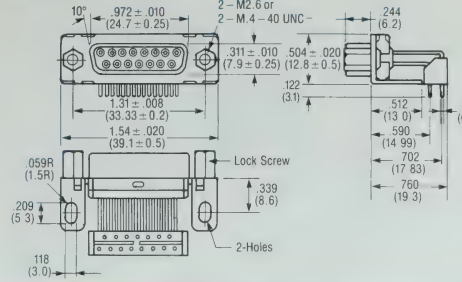
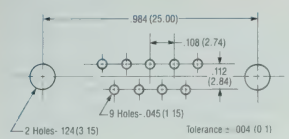
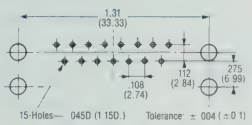
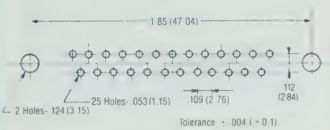


RECOMMENDED PC BOARD MOUNTING HOLES DIMENSIONS

CUBM09	CUBM15	CUBM25

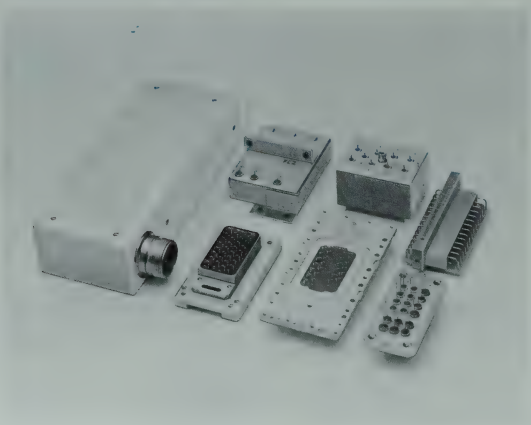






★Available as standard through authorized Murata Erie Distributors.

CUSTOM DESIGNED FILTER NETWORKS AND ARRAYS



Murata Erie specializes in developing sophisticated circuit designs and creating high component density packaged networks and arrays. And Murata Erie does it all...in-house. Our engineering design teams analyze individual customer problems, design specific components or networks to solve the problem, build prototypes and test the complete system.

To support the high technological content of these custom networks, the engineering and test capabilities at the Murata Erie facility have become one of the most advanced in the industry today. The realiability of every component and network is assured by a comprehensive battery of tests performed under carefully controlled conditions. Then, in-line prototype techniques further validate component performance prior to volume production.

These technical support activities permit Murata Erie to respond to customer needs promptly and efficiently with positive performance engineered into the customer's system. If your requirements are unique, if you have a critical space, weight or environmental problem, Murata Erie can help solve your specific requirements for you with a custom designed filter network.

FILTERED CONNECTORS

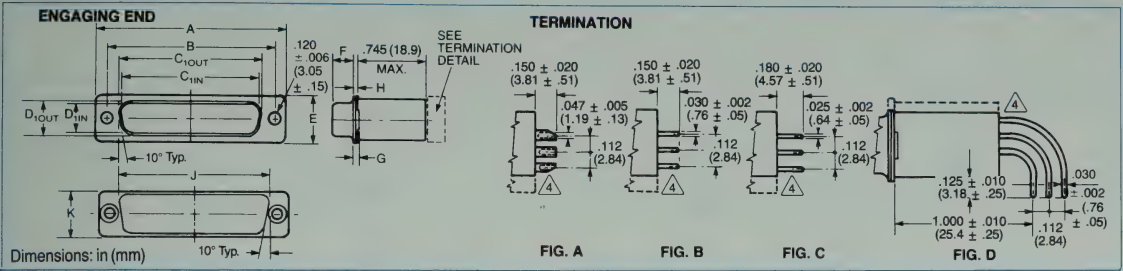
Murata Erie does not usually manufacture the connector itself but procures a fully qualified connector and adds the filter elements to it. This "Piggy-Back" construction offers the best of two worlds, a connector manufactured by experts in their field and filters manufactured by Murata Erie who are also experts in their field, a tough combination to beat.

Murata Erie's mechanical and electrical engineering teams have developed this product line with two main goals in mind. First to offer you a package that is as electrically efficient as possible and secondly to environmentally protect this package by completely encapsulating it in a specially formulated epoxy, developed and tested over many years.

Murata Erie achieves its first goal of electrical efficiency by soldering every junction between all active components. This results in the absolute best grounding technique available to you. Just as one would not rely on a capacitor mounted on a P.C. Board by mechanical means to maintain its electrical integrity in a critical circuit, we, at Murata Erie, do not rely on mechanical grounding as others do to provide the various insertion loss characteristics required. The solder construction and complete encapsulation results in a filter connector that is more than capable of withstanding the many complex electrical and environmental requirements that have become commonplace in our sophisticated electronic society.

Filtered connectors are available to meet the following MIL specifications: MIL-C-5015, MIL-C-83723, MIL-C-26482, MIL-C-38999.

DIMENSIONS: in. (mm)



SOCKET/ ENGAGEMENT	Configuration -XXX$_1$-	No. of Lines	A ±0.15 (.38)	B ±.05 (.13)	C, out ±.005 (.13)	D, out ±.005 (.13)	E ±.015 (.38)	F ±.005 (.13)	G +.015 (3.8) -.010 (.25)	H ±.010 (.25)	J ±.010 (.25)	K ±.010 (2.5)	Insert Arrangement
	1255-128-	9	1.213 (30.8)	.984 (25.0)	.643 (16.3)	.311 (7.9)	.494 (12.5)	.243 (6.2)	.045 (1.1)	.030 (.76)	.790 (20.1)	.456 (11.6)	MS18273-1
	1255-129-	15	1.541 (39.1)	1.312 (33.3)	.971 (24.7)	.311 (7.9)	.494 (12.5)	.243 (6.2)	.045 (1.1)	.030 (.76)	1.105 (28.1)	.456 (11.6)	MS18274-1
	1255-130-	25	2.088 (53.0)	1.852 (47.0)	1.511 (38.4)	.311 (7.9)	.494 (12.5)	.243 (6.2)	.045 (1.1)	.030 (.76)	1.650 (41.9)	.456 (11.6)	MS18275-1
	1255-131-	37	2.729 (69.3)	2.500 (63.5)	2.159 (54.8)	.311 (7.9)	.494 (12.5)	.243 (6.2)	.045 (1.1)	.030 (.76)	2.295 (58.3)	.456 (11.6)	MS18276-1
	1255-132-	50	2.635 (66.9)	2.406 (61.1)	2.064 (52.4)	.423 (10.7)	.605 (15.4)	.243 (6.2)	.045 (1.1)	.030 (.76)	2.205 (56.0)	.570 (14.5)	MS18277-1

PIN/ ENGAGEMENT	Configuration -XXX$_1$-	No. of Lines	A ±0.15 (.38)	B ±.005 (.13)	C, in ±.005 (.13)	D, in ±.005 (.13)	E ±.015 (.38)	F ±.006 (.15)	G ±.010 (.25)	H ±.010 (.25)	J ±.010 (.25)	K ±.010 (2.5)	Insert Arrangement
	1255-028-	9	1.213 (30.8)	.984 (25.0)	.666 (16.9)	.329 (8.3)	.494 (12.5)	.238 (6.05) .229 (5.8)	.060 (1.5) .035 (.9)	.030 (.76)	.790 (20.1)	.456 (11.6)	MS18273-1
	1255-029-	15	1.541 (39.1)	1.312 (33.3)	.994 (25.2)	.329 (6.4)	.494 (12.5)	.238 (6.05) .229 (5.8)	.060 (1.5) .035 (.9)	.030 (.76)	1.105 (28.1)	.456 (11.6)	MS18274-1
	1255-030-	25	2.088 (53.0)	1.852 (47.0)	1.534 (39.0)	.329 (8.4)	.494 (12.5)	.230 (5.8)	.060 (1.5)	.039 (1.0)	1.650 (41.9)	.456 (11.6)	MS18275-1
	1255-031-	37	2.729 (69.3)	2.500 (63.5)	2.182 (55.4)	.329 (8.4)	.494 (12.5)	.230 (5.8)	.060 (1.5)	.039 (1.0)	2.295 (58.3)	.456 (11.6)	MS18276-1
	1255-032-	50	2.635 (66.9)	2.406 (61.1)	2.079 (52.8)	.436 (11.1)	.605 (15.4)	.230 (5.8)	.060 (1.5)	.039 (1.0)	2.205 (56.0)	.570 (14.5)	MS18277-1

NOTES: 1) **Material & Finish**
Front Shell - Steel, Cadmium Plate With Yellow Chromate Finish Per QQ-P-416.
Back Shell - Steel, Silver Plate, Per M.E.T.R.P.S. 10011, Para. 3.1.
Contacts - Copper, Alloy, Gold Plate Per MIL-G-45204 Type 1, Grade C.
Terminals - Copper Alloy, Gold Plate Per M.E.T.R.P.S. 10013, Para. 3.6.
Insert - Diallyl Phthalate Per MIL-M-14.
(Contact Side) Insulation - Epoxy (Terminal Side)

2) Contacts Are Located Within 0.005 (.13) Dia. True Position Insert Arrangement.
3) S-cup Terminals Are Located Within 0.010 (.25) Dia. True Position Of Respective Insert Arrangement. PCB and Wire Wrap Terminals Are Located Within 0.005 (.13) Dia. True Position Of Respective Insert Arrangement.
4) In Termination Detail Phantom Lines Represent 50 Line Connector Only.
5) **Marking:** M.E.T.R. Symbol
M.E.T.R. Sales Number (Unless Otherwise Specified By Customer Specification)
Date Code

PART NUMBERING INFORMATION

1255 - 1 30$_1$ - 0021$_2$

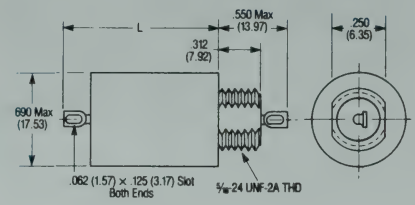
- 1255 — "D" Connector
- 1 — Engagement type pin, socket (see above)
- 30$_1$ — No. of contacts 9, 15, 25, 37, 50 (see above)
- 0021$_2$ — Item Number, Termination type and Cx. Dissipation Factor: 4% max. Temperature Range: -55°C to 125°C Current, DC: 5 amps max.

-XXXX$_2$ Item Number				Schem.	Cx min. @ 25°C .1 - 1.0 VRMS 1KHz	Working Voltage				DCR max. MΩ	I.R. GΩ @ WVDC, 120 sec.	D.W.V. (VDC) (Note 1)	Minimum Insertion Loss at No Load 25°C (dB min.)				
						WVDC		WVAC									
SLDR Cup Fig. A	PCB Fig. B	Wire Wrap Fig. C	90° PCB Fig. D			85°C	125°C	85°C	125°C				1 MHz	10 MHz	100 MHz	500 MHz	1 GHz
0001	0021	0041	0081	Pi	100pF	350	200	125	125	8.0	5.0	600	-	-	6	23	34
0002	0022	0042	0082	Pi	300pF	350	200	125	125	8.0	5.0	600	-	1	16	40	51
0003	0023	0043	0083	Pi	1000pF	350	200	125	125	8.0	5.0	600	-	4	33	59	70
0004	0024	0044	0084	Pi	3000pF	200	100	-	-	8.0	1.0	500	-	11	50	76	80
0005	0025	0045	0085	Pi	.01μF	200	100	-	-	8.0	1.0	300	4	27	69	80	80
0006	0026	0046	0086	Pi	.03μF	150	100	-	-	8.0	1.0	300	11	45	80	80	80
0007	0027	0047	0087	C	100pF	350	200	125	125	8.0	5.0	600	-	-	4	16	21
0008	0028	0048	0088	C	300pF	350	200	125	125	8.0	5.0	600	-	-	12	24	30
0009	0029	0049	0089	C	1000pF	350	200	125	125	8.0	5.0	600	-	4	21	34	39
0010	0030	0050	0090	C	3000pF	200	100	-	-	8.0	1.0	500	-	12	30	42	48
0011	0031	0051	0091	C	.01μF	150	100	-	-	8.0	1.0	300	4	21	39	52	57
0012	0032	0052	0092	C	.03μF	150	100	-	-	8.0	1.0	300	12	30	48	60	66
0013	0033	0053	0093	C	.1μF	70	50	-	-	8.0	1.0	140	21	39	57	70	75
0014	0034	0054	0094	Pi	.004μF	200	100	-	-	8.0	1.0	500	1	13	55	80	80
0015	0035	0055	0095	Pi	2000pF 5000	200	100	125	125	7.4	1.0	600	-	8	43	69	80
0016	0036	0056	0096	Pi	500pF	350	200	125	125	7.4	5.0	600	-	2	23	48	59
0017	0037	0057	0097	Pi	1500pF	350	200	125	125	8.0	1.0	600	-	6	39	65	76
0018	0038	0058	0098	C	.05μF	50	28	-	-	8.0	1.0	100	16	34	52	64	70
0020	0040	0060	0100	Pi	.1μF	50	28	-	-	8.0	1.0	100	21	39	57	70	75

Note 1: 1-5 second max. with charge current limit 50 mA

EMI SUPPRESSION FILTERS
HERMETICALLY SEALED
POWER LINE FILTERS to MIL-F-15733

POWER LINE FILTERS

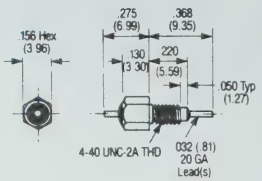


Volt Code	Voltage Rating	
	+85°C	+125°C
B	450 VDC/240 VAC	300 VDC/240 VAC

Dimensions: in. (mm)

Murata Erie Part No.	Type	Max. L (in.)	Typical Weight (g)	Volt Code	IRMS (A)	Min. Cap. (μF)	Min. IR (MΩ)	Max. RDC (Ω)	Minimum Full Load Insertion Loss from -55°C to +125°C per MIL-STD-220 (dB)					
									30 KHz	100 KHz	300 KHz	1 MHz	10 MHz	1 GHz
9930-100-6006	C	.498	12	B	15	.10	1000	.005	—	—	12	21	40	60
★9932-100-6005	C	.687	16	B	15	.21	1000	.005	—	10	18	27	45	60
9010-100-0053 9010-100-0058	LT LB	.890	16	B	.5	.10	1000	.6	—	18	36	55	70	70
9010-100-0054 9010-100-0059	LT LB	.890	16	B	1	.10	1000	.25	—	14	32	52	70	70
9010-100-0055 9010-100-0060	LT LB	.890	16	B	3	.10	1000	.06	—	5	15	32	70	70
9010-100-0056 9010-100-0061	LT LB	.890	16	B	5	.10	1000	.015	—	—	12	24	60	70
9010-100-0057 9010-100-0062	LT LB	.890	16	B	10	.10	1000	.005	—	6	12	22	40	60
9011-100-1030	Pi	1.185	22	B	.5	.21	1000	.6	—	27	54	80	80	80
★9011-100-1008	Pi	1.185	22	B	1	.21	1000	.25	—	23	54	80	80	80
★9011-100-1031	Pi	1.185	22	B	3	.21	1000	.06	—	4	29	61	80	80
9011-100-1032	Pi	1.185	22	B	5	.21	1000	.015	—	—	—	49	80	80
★9011-100-1033	Pi	1.185	22	B	10	.21	1000	.005	—	9	19	29	46	80
9011-100-2016	T	1.185	22	B	1	.10	1000	.5	—	24	53	75	75	75
9011-100-2040	T	1.185	22	B	2	.10	1000	.09	—	—	18	46	75	75
9011-100-2024	T	1.185	22	B	4	.10	1000	.03	—	—	12	28	75	75
9011-100-2025	T	1.185	22	B	10	.10	1000	.005	—	6	12	23	40	75

FEED-THRU Bushing Mount



Dimensions: in. (mm)

Murata Erie Part No.	Min. Cap. (pF)	Working Voltage (VDC)		IDC (A)	Minimum Full Load Insertion Loss from -55°C to +125°C per MIL-STD-220 (dB)			
		85°C	125°C		10MHz	100MHz	1GHz	10GHz
★9900-381-6004	5,000	70	50	10	15	30	45	55
★9900-381-6005	15,000	100	70	10	20	35	50	60
9900-381-6026	31,000	70	50	10	25	40	55	60
★9900-381-6006	45,000	50	35	10	30	45	55	60
★9900-381-6013	2,700	150	100	10	10	25	40	50
★9900-381-6020	100	300	200	10	—	3	20	28
★9900-381-6021	500	300	200	10	—	15	35	40
★9900-381-6022	1,200	300	200	10	5	20	35	45

★Available as standard through authorized Murata Erie Distributors.

LOW PASS EMI FILTERS
LB SECTION–COAXIAL HERMETIC STYLE BUSHING MOUNT

DIMENSIONS: in. (mm)

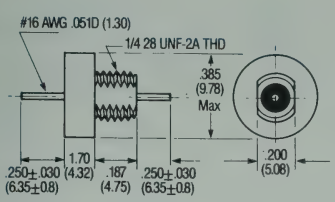


Fig. 1

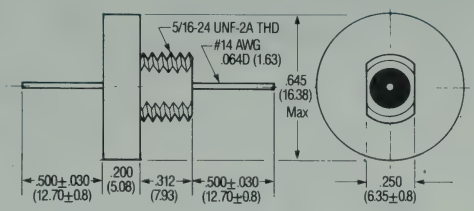
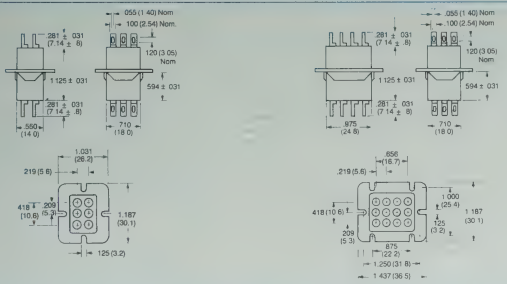


Fig. 2

Murata Erie Part Number	Fig.	Voltage Rating (VDC) 85°C	Voltage Rating (VDC) 125°C	IDC (A)	Min. Cap. (μF)	Min. IR (MΩ)	Max. (RDC)	Minimum Insertion Loss from −55°C to +125°C per MIL-STD-220(dB) 30 KHz	100 KHz	300 KHz	1 MHz	10 MHz	1 GHz
9051-101-0018	1	80	50	25	1.4	500	.001	15	25	34	44	60	70
9022-701-0000	2	80	50	50	1.4	—	.001	15	25	34	44	60	70

MULTI-SECTION EMI FILTERS



SCHEMATIC

Murata Erie Part Number	Current IDC	Working Voltage (DC)	Fig.	DCR max. Ω	Capacitance @25°C 1.0 VRMS, 1KHz	Minimum No Load Insertion Loss Per MIL-STD-220 (dBmin.) 100 KHz	1 MHz	10 MHz	100 MHz	500 MHz	1 GHz
1206-1212-0502	10A	350	1	.01	5000 pF	—	1	24	65	80	80

LOW PASS EMI FILTERS SAMPLE KIT

EMI FILTERS ENGINEERING DESIGN KIT—PART NO. SMBX-00015

To make the design engineer's EMI/RFI filter selection for prototype development applications easier, Murata Erie North America has developed an extremely useful design engineering kit. This kit includes a typical selection of feed-thru low pass filters, with both eyelet and coaxial mounts and in a variety of circuit configurations. The included filters are selected to meet most application requirements. Specifications, attenuation characteristics, and circuit configurations for each filter are also supplied.

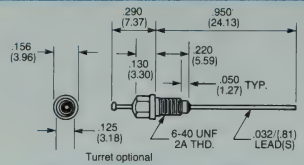
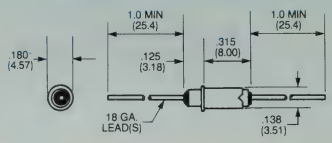
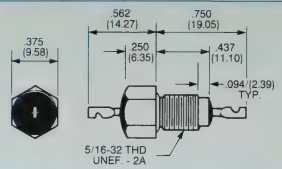
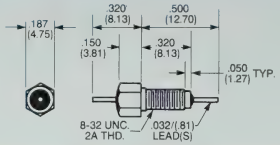
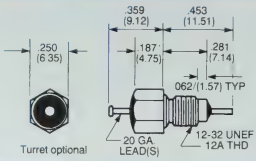
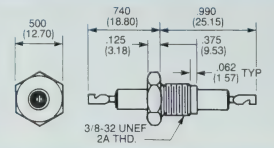
Available off-the-shelf for immediate delivery.

No.	Part Number	Amount	Description
1	*1250-003	5	Single
2	*1270-016	3	Single
3	*1280-060	2	Single
4	*1216-001	3	Single
5	*1289-004	3	Single
6	*1293-000	3	Single
7	*1293-001	3	Single
8	*1221-001	3	Single
9	*1214-001	10	Single
10	*9900-381-6004	3	Coax
11	*9900-381-6020	3	Coax
12	*9051-100-0011	2	Coax
13	9011-100-2025	2	Coax
14	9011-100-2045	2	Coax
15	*9001-100-1015	2	Coax
16	*9200-303-0094	2	Coax
17	*9011-100-1008	2	Coax
18	1263-339-5003	1	25 Pin "D" Adaptor

★Available as standard through authorized Murata Erie Distributors.

LOW PASS EMI FILTERS
PI SECTION
BUSHING, EYELET, and SLEEVE MOUNT

SPECIFICATIONS Dimensions: in. (mm)

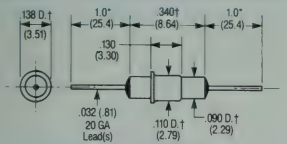
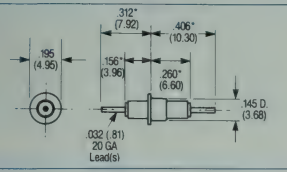
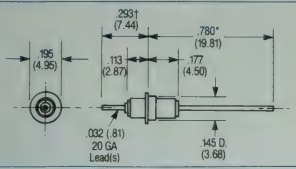
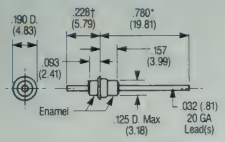
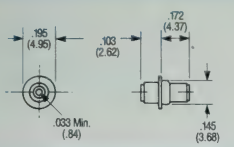
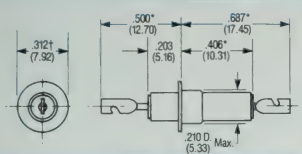
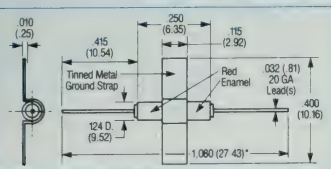
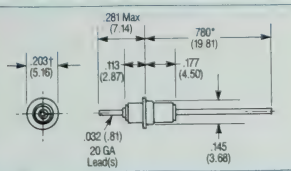
PI TYPE	Part Number	Min. Cap. (pF)	Working Voltage (WVDC) 85°C	Working Voltage (WVDC) 125°C	Current IDC	Minimum No Load Insertion Loss (dB) at 25°C per Mil-Std-220 10 MHz	100 MHz	1 GHz	10 GHz
	1289-001	1500	200	200	10	5	40	60	60
	1289-004	3000	300	200	10	8	50	70	70
	1217-000	3000	350	200	10	8	55	65	65
	1202-005	2000	1000	—	25	5	50	65	65
	1202-052‡ 5/16-24 THD.	3000	500	500	25	8	55	70	70
	1202-054								
	1293-000	12000	200	125	10	28	65	70	70
	1293-001	28000	100	70	10	38	75	75	75
	1201-054	1500	350	200	10	5	45	70	70
	1201-052‡ 12-28 THD.								
	1201-086	2500	500	350	10	5	50	70	70
	1201-066	5500	200	100	10	20	68	70	70
	1280-060	1500	2500	—	25	5	50	50	50

All values are available as standard through authorized Murata Erie Distributors.

LOW PASS EMI FILTERS
PI SECTION
SOLDER-IN MOUNT

SPECIFICATIONS: Dimensions: in. (mm)

MIL-F-15733 APPROVED

PI TYPE	Part No.*	MIL-F-15733 QPL No.	Min. Cap. (pF)	Working Voltage (VDC)		Current IDC (A)	Minimum Insertion Loss at 25°C per MIL-STD-220 (dB)			
				85°C	125°C		10MHz	100MHz	1GHz	10GHz
	1251-007	M15733/62-0002	1500	350	200	10	5	40	70	70
	1203-050	M15733/62-0001	1500	350	200	10	5	45	70	70
	1214-001	M15733/33-0001	1750	250	125	10	5	50	60	60
	1214-029	M15733/33-0002	1750	250	125	10	5	50	60	60
	1214-007	M15733/66-0001	1750	250	125	10	5	35	60	60
	1204-050	M15733/40-0001	3000	700	500	25	8	50	70	70
	1234-001	M15733/64-0001	.012μF	100	70	10	25	70	65	65
	1234-000	M15733/62-0004	.012μF	100	70	10	25	70	65	65

†: ±.015 (.38)
*: ±.031 (.79)

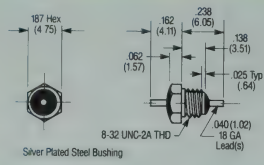
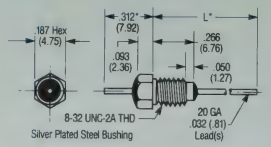
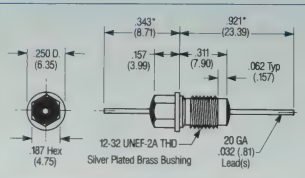
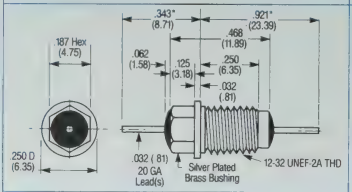
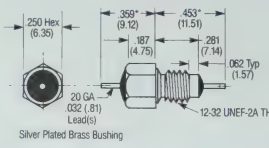
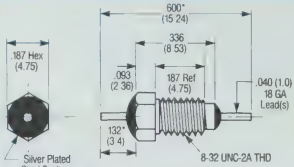
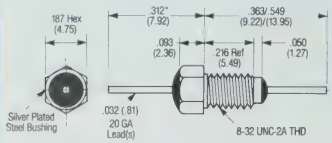
All values are standard through authorized Murata Erie Distributors.

*Q.P.L. Parts must be ordered by Military Part Number.

LOW PASS EMI FILTERS
PI SECTION
BUSHING MOUNT

SPECIFICATIONS: Dimensions: in. (mm)

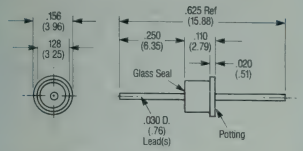
MIL-F-15733 APPROVED

PI TYPE	Part No.	MIL-F-15733 QPL No.	Min. Cap. (pF)	Working Voltage (VDC) 85°C	Working Voltage (VDC) 125°C	Current IDC (A)	Minimum Insertion Loss at 25°C per MIL-STD-220 (dB) 10MHz	100MHz	1GHz	10GHz
	★1250-063	M15733/44-0002	1500	250	125	15	5	35	60	60
	★1250-003	M15733/28-0001 L=.891 (26.6)	1500	200	100	10	5	45	65	60
	★1250-049	M15733/43-0002 L=.578 (14.7)	1500	200	100	10	5	45	65	60
	1270-009	M15733/61-0005	1500	350	200	10	5	45	70	70
	1270-024 ★D=.235/5.97	M15733/61-0006	1500	350	200	10	5	45	70	70
	★1270-016	M15733/61-0010	5000	200	100	10	20	65	70	70
	1270-025 ★D=.235/5.97 No Hardware	M15733/61-0011	5000	200	100	10	20	65	70	70
	1270-101	M15733/61-0007	5000	200	100	10	15	65	70	70
	★1201-054	M15733/61-0002	1500	350	200	10	5	45	70	70
	★1201-052‡ 12-28 THD.	M15733/61-0001	1500	350	200	10	5	45	70	70
	★1250-062	M15733/44-0001	3000	185	125	15	10	30	65	65
	★1250-054	M15733/61-0008	5000	100	70	10	20	65	70	70

†: ±.015
*: ±.031

Q.P.L. Parts must be ordered by Military Part Number.
★Available as standard through authorized Murata Erie Distributors.

C TYPE - Solder Mount



C TYPE

Dimensions: in. (mm)

Part Number	Min. Cap. pF	WVDC 85°C	WVDC 125°C	Current IDC	Min. Full Load Insertion Loss (dB) 10MHz	100MHz	1GHz	10GHz
*9900-001-6004	5000	70	50	5	15	30	45	55
*9900-001-6013	2700	150	100	5	10	25	40	50
*9900-001-6020	100	300	200	5	—	3	20	28
*9900-001-6021	500	300	200	5	—	15	35	40
*9900-001-6022	1200	300	200	5	5	20	35	45

NOTE: Also available with glass seal at opposite end.

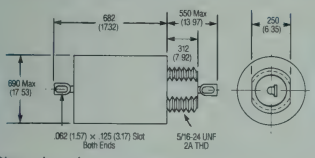
C TYPE - To MIL-F-15733

• 50 KHz to 10 GHz • 100 VDC to 300 VDC

OPERATING TEMPERATURE

Voltage Code‡	Operating Temperature +85°C	Operating Temperature +125°C
A	150 VDC	100 VDC
B	200 VDC/125 VAC	150 VDC/125 VAC
C	450 VDC/230 VAC	300 VDC/230 VAC

‡All AC Ratings are to 400 Hz



Dimensions: in. **Figure 1**

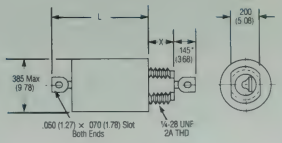
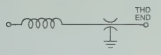


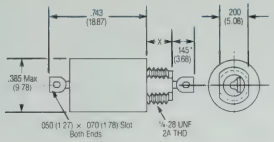
Figure 2

Part Number	CAP. G.M.V. MFD	Max. "L" In.	Fig.	Voltage Code	IDC (A)	I.R. Meg. Ohm Min.	Minimum Full Load Insertion Loss (dB) Per MIL-STD-200 (−55°C to +125°C) 50 KHz	100 KHz	150 KHz	300 KHz	1 MHz	10 MHz	1 GHz
*9920-100-6000	.33	.387	2	A	15	1000	7	13	16	21	31	60	60
*9923-100-6000	.99	.576	2	A	15	250	16	19	25	31	41	60	65
9930-100-6000	.7	.498	1	A	15	400	15	20	24	27	37	50	60
*9920-100-6002	.1	.387	2	B	15	1000	—	4	8	12	20	41	65
*9923-100-6002	.3	.576	2	B	15	800	7	13	16	20	30	51	65
9930-100-6001	.42	.498	1	B	15	1000	10	16	19	24	34	51	60
*9932-100-6005	.21	.687	1	C	15	1000	5	10	13	18	27	45	60

LOW PASS - L TYPE - To MIL-F-15733

LT Type





LB Type

Dimensions: in.

9200 Series=LB T=.187	T=.312	"L" Max.	Amps IDC	Ohms Max. RDC	Minimum Insertion Loss @ 25°C per MIL-STD-220 30 KHz	150 KHz	300 KHz	1 MHz	10 MHz	1 GHz	9215 Series=LT "L" Max.	T=.187	T=.312
9200-300-0028	9200-303-0098	.740	.060	70	44	70	70	70	70	70	.740	9215-300-0028	9215-303-0098
9200-300-0023	*9200-303-0093	.740	.150	12	24	52	64	70	70	70	.740	9215-300-0023	9215-303-0093
*9200-300-0024	*9200-303-0094	.740	.250	4	18	42	56	70	70	70	.740	9215-300-0024	9215-303-0094
9200-300-0021	9200-303-0091	.740	.300	2.3	16	35	44	62	70	70	.740	9215-300-0021	9215-303-0091
9200-300-0022	9200-303-0092	.740	.450	1.2	15	31	37	55	70	70	.740	9215-300-0022	9215-303-0092
*9200-300-0025	*9200-303-0095	.740	10	.01	15	28	33	44	60	70	.740	9215-300-0025	9215-303-0095
					Minimum No Load Insertion Loss from −55°C to +125°C per MIL-STD-2200								
*9200-300-0048	9200-303-0048	.740	.06	70	40	68	70	70	70	70			
*9200-300-0043	9200-303-0043	.740	.15	12	20	47	60	70	70	70			
*9200-300-0044	9200-303-0044	.740	.25	4	12	38	50	70	70	70			
*9200-300-0041	9200-303-0041	.740	.30	2.3	9	29	40	60	70	70			
*9200-300-0042	9200-303-0042	.740	.45	1.2	9	23	32	52	70	70			
*9200-300-0045	9200-303-0045	.740	10	.01	9	23	28	38	55	70			

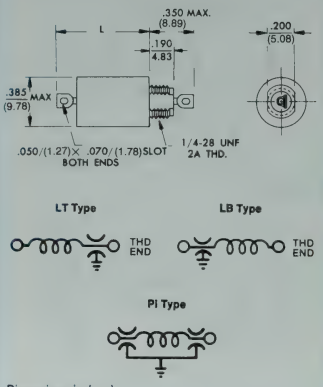
Voltage: 50 VDC @ 85°C, 35 VDC at 125°C
***Voltage:** 100 VDC @ 85°C, 70 VDC at 125°C

Insulation Resistance: 100 Megohms Minimum.
***Insulation Resistance:** 500 Megohms Minimum.

★Available as standard through authorized Murata Erie Distributors.

EMI SUPPRESSION FILTERS
HERMETICALLY SEALED
to MIL-F-15733

Low Pass - LT, LB & Pi Types

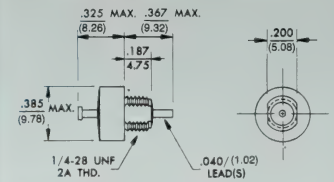


Dimensions: in. (mm)

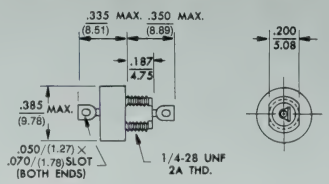
Part Number	Type	Max. L (in.)	Typ. Wt. (g)	IDC (A)	Min. Cap. (μF)	Min. IR (MΩ)	Max. RDC (Ω)	Minimum Full Load Insertion Loss from -55°C to +125°C STD-220						
								15 KHz	30 KHz	100 KHz	300 MHz	1 MHz	10 GHz	1 GHz
9060-100-0010 9060-100-0000	LT LB	.630	7.5	.1	.95	1000	1.7	9	20	39	58	70	70	70
9060-100-0011 9060-100-0001	LT LB	.630	7.5	.3	.75	1000	.75	6	15	33	52	70	70	70
9060-100-0012 9060-100-0002	LT LB	.630	7.5	.5	.7	1000	.36	5	12	27	46	67	70	70
9060-100-0013 ★9060-100-0003	LT LB	.630	7.5	1	.7	1000	.14	5	11	19	34	53	70	70
9060-100-0014 9060-100-0004	LT LB	.630	7.5	2	.7	1000	.07	5	10	18	30	46	70	70
9060-100-0021 9060-100-0020	LT LB	.630	7.5	5	.7	1000	.015	4	9	18	28	38	65	70
9061-100-1000	Pi	.730	8.5	.1	1.4	500	1.7	15	33	65	80	80	80	80
★9061-100-1001	Pi	.730	8.5	.3	1.4	500	.75	4	29	60	80	80	80	80
9061-100-1002	Pi	.730	8.5	.5	1.4	500	.36	—	21	54	78	80	80	80
★9061-100-1003	Pi	.730	8.5	1	1.4	500	.14	—	—	39	69	80	80	80
★9061-100-1004	Pi	.730	8.5	2	1.4	500	.07	—	—	31	63	80	80	80
9061-100-1012	Pi	.730	8.5	5	1.4	500	.015	—	—	—	50	80	80	80

Voltage Rating	Operating Temperature
100 VDC	-55°C to +85°C
70 VDC	-55°C to +125°C

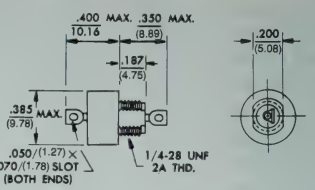
9050 SERIES - EPOXY SEALS



9051 SERIES - HERMETIC SEALS



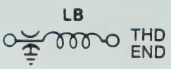
9053 SERIES - HERMETIC SEALS



Dimensions: in. (mm)

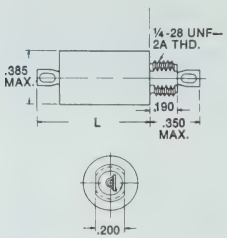
ERIE Part No.	Typ. Wt. (g)	Volt. Code	IDC (A)	Min. Cap. (μF)	Min. I.R. (MΩ)	Man. RDC (Ω)	Minimum Full Load Insertion Loss (dB) at Indicated Temp. per MIL-STD-220						
							30 KHZ	150 KHz	300 KHz	1 MHz	10 MHz	1 GHz	
★9050-100-0000	2.5	A	15	1.2	100	.005	4	18	21	32	50	70	
★9051-100-0000	3.0	A	15	1.2	100	.005	4	18	21	32	50	70	
★9053-100-0001	3.5	A	15	1.2	500	.005	14	27	33	43	59	70	-55°C
★9050-100-0008	2.5	B	15	.7	1000	.005	9	23	29	39	52	70	to
★9053-100-0002	2.5	C	15	.3	1000	.005	4	16	21	31	48	70	+125°C
9050-100-0010	3.0	D	15	.022	1000	.005	—	—	—	8	28	50	

OPERATING TEMPERATURE



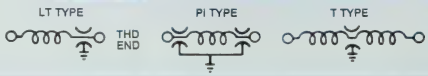
Voltage Code	Operating Temperature	
	-55°C to +85°C	-55°C to +125°C
A	80 VDC	50 VDC
B	100 VDC	70 VDC
C	150 VDC	100 VDC
D	300 VDC	200 VDC

Low Pass - L, Pi & T Types



Dimensions: in.

Part Number	Type	Max. "L" (In.)	IDC A	Meg. Ohm. Min.	I.R.	Minimum Full Load Insertion Loss (dB) -55°C to +125°C per MIL-STD-220					
					75 KHz	150 KHz	300 KHz	1 MHz	10 MHz	1 GHz	
9000-100-0012*	LT	.743	.5	400	24	35	47	65	70	70	
9000-100-0015*	LT	.743	1.0	400	15	27	36	57	70	70	
9000-100-0017*	LT	.743	3	400	14	22	29	44	65	70	
9000-100-0019	LT	.743	5	400	14	20	26	37	65	70	
★9001-100-1010	Pi	.793	.5	1000	33	51	68	80	80	80	
★9001-100-1013	Pi	.793	1.0	1000	19	41	59	80	80	80	
★9001-100-1015	Pi	.793	3	1000	—	16	41	74	80	80	
★9001-100-1017	Pi	.793	5	1000	—	—	26	63	80	80	
9004-100-2001	T	1.179	2	100	14	22	31	54	70	70	



Operating Temperature	Voltage Rating
-55°C to +85°C	150V
-55°C to +125°C	100V

★Available as standard through authorized Murata Erie Distributors.

MURATA ERIE HYBRID IC's SERIES

Murata Erie's Hybrid IC's are developed and manufactured based on the company's own original total hybrid system. This system offers many services to the customer including design consultation, sample lot production, pre-production, and mass production rationalization. The advantages of this system allows Murata Erie to work closely with the customer to meet all design and price targets required for a successful project. Successful application of this total system has allowed Murata Erie to support customers who compete in highly competitive markets such as Communication, Office Automation, and Consumer Electronics. Murata Erie has a Hybrid IC product line that includes Functional, Custom, and Semicustom devices.

WHAT IS A HYBRID IC?

Hybrid IC (Hybrid Integrated Circuit) incorporates electrical circuitry which combine such components as semiconductors, passive components, and printed elements on a ceramic substrate. There are basically two types of Hybrid IC, Thin Film and Thick Film. Thick Film tends to require less processing equipment than Thin Film and is more suitable for mass production. Because of the popularity and wide use of Thick Film, the term "Hybrid IC" has become traditionally associated with this technology. Murata Erie's technology is Thick Film Hybrid IC technology.

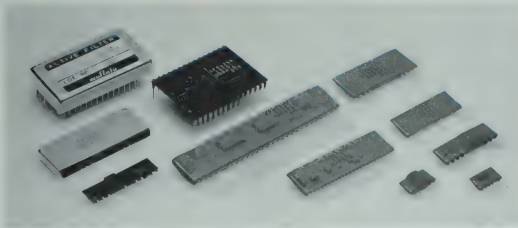
FEATURES OF HYBRID IC's

- Reduce component count and control costs.
- Shipped as 100% fully tested circuit module.
- Large variety of passive and active components can be mounted to substrate.
- Good high frequency and heat dissipation characteristics.
- Increased redesign and next generation design flexibility.
- Greatly reduces "time to market" cycle and costs.

APPLICATION FOCUS

HYBRID IC		Active Filters	RC/C Modules	Functional Module				Custom Modules
				Ceralock Oscillators	DC-DC Converters	Isolation Amps	Current Detectors	
Office Equipment	Modem and Facsimile	•		•			•	•
	Printer/Typewriter		•	•				•
	Copying Machine		•					
	FDD/HDD		•	•				•
	CPU Terminal	•	•	•				•
	Personal Computer I/O Board	•	•			•	•	•
Telecommunications	Electronic PBX/ISDN	•	•		•			•
	Mobile Telephone	•			•			
	Key Telephone	•	•	•				•
	Cordless Telephone	•	•		•		•	•
	Pager		•		•			
Factory Communication	Numerical Control Machine	•			•	•		
	Programmable Controller		•	•				
Consumer Electronics	TV	•	•					
	DBS Tuner	•						
	Home Audio/Portable Audio	•	•	•	•			
	Car Audio	•	•	•	•			•
	Home Electric Appliances		•	•				

ACTIVE FILTER



Murata Erie active filters have achieved a high level of performance and quality, with over eighteen years of internal circuit design and thick film technology development. We participate in many markets and applications where active filters are commonly found. Some examples of these applications and resulting products specifications are provided below.

Murata Erie has many other active filter design options ranging from 10Hz to 200kHz. For large volume production requirements, we can also custom design your active filter. Refer to the FOCUSED APPLICATION CHART above, for all applications we are prepared to support. Please contact Murata Erie Hybrid IC (HIC) Application Engineers for consultation.

ACTIVE FILTER EXAMPLES (Please contact Murata Erie hybrid IC Group to discuss your detail filter requirements.)

Application	Part Number	Frequency			Gain			Power Supply		Package
		fc or fo (Hz)	Pass-Band Range (Hz)	Max Ripple in Pass-Band (dB)	Pass-Band (dB)	Accuracy (dB)	Freq. (Hz)	Voltage (V)	Max Current (mA)	Size (L×W×H) (mm)
3 Order Stereo PCM Audio	AFS86F20000A2	20000	20 to 20000	±0.3	−6	±0.5	1000	±15	15	36×17×5
5 Order PCM Audio	AFL75F20000C1	20000	20 to 20000	±0.3	−6	±1.0	1000	±18	10	28×13×6.5
7 Order Stereo PCM Audio	AFS814F20000A2	20000	20 to 20000	±0.5	−6	±0.5	1000	±15	20	55×15×5
9 Order PCM Audio	AFL89F20000D1	20000	20 to 20000	±0.8	6.3	±0.5	1000	±18	20	38×17×5.5
9 Order PCM Audio	AFL89WB20000C5	20000	20 to 20000	±0.3	−6	±1.0	1000	±15	20	37×16×5
11 Order PCM Audio	AFL811WF22000B3	22000	20 to 22000	±0.3	−6	±1.0	1000	±15	25	53×17×5
11 Order PCM Audio	AFL811WF20000B3	20000	20 to 20000	±0.3	−6	±1.0	1000	±15	25	53×17×5
DBS Low Pass Filter	AFL87F15000E1	15000	20 to 15000	±0.8	6.3	±0.5	1000	±18	15	33×15×6.5
Group Delay EQ for FAX	AFE36F1800E1	—	300 to 3400	±1.0	0	±0.1	300	±12	12	33×13.5×6.5
Receive BPF for FAX	AFB19F1000L1	1000	500 to 2000	±0.7	0	±0.1	1000	±12	5	33×15×6.5
Receive BPF for Modem	AFB87F1000C1	1000	500 to 2000	±0.7	0	±0.1	1000	±12	6	33×12×6.5
Splatter LPF 2-Way Radio TX	AFL24F3000A10	3000	100 to 3000	±1.0	−1.0	±0.5	300	+12	3	16.5×11.5×5
HPF 2-Way Radio TX	AFH24F250A10	250	250 to 3000	±1.0	−0.5	±0.5	2500	+7	0.8	16×11.5×5
2-Way Radio Data Band	AFL85F210C11	210	10 to 210	±1.0	0	±1.0	100	±12	12.5	24×8×12
2-Way Radio Audio Band	AFH85F300B1	300	300 to 3000	±1.0	0	±1.0	1000	±12	5.7	25×5.5×12.5

AFL = Low Pass, AFH = High Pass, AFB = Band Pass, AFS = Stereo Low Pass, AFE = EQ Function

HYBRID
IC/SEMICUSTOM (RC/C MODULE)

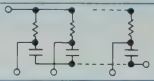
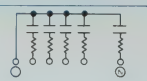
These products represent our most standard Hybrid line. Consisting of standard Resistor/Capacitor and Capacitor network circuit configurations, the customer decides the individual component values. Once a customer determines the ideal values of capacitor and resistor, Murata Erie can provide these products in mass production quantities.

FOR PART NUMBERS NOT SHOWN BELOW, CONTACT MURATA ERIE HYBRID GROUP FOR DESIGN OPTIONS.

PART NUMBERING SYSTEM (RC-MODULE)

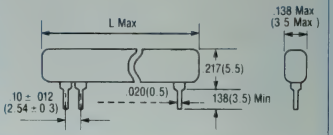
ARC	L	9	L	102J	471K
Murata RC-Module	**ARCL Series:** L **ARC Series:** No mark	Number of Pins	Circuit Type	**Resistance Value and Tolerance** 102J 1,000Ω ±5%, 1/10W	**Capacitance Value and Tolerance** 221K 471pF ±10% COG

SPECIFICATIONS/ARC SERIES

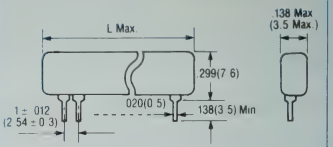
Prefix	Circuit Type	Circuit	Configuration			
ARCL	L		Number of Pins		9	
			Number of Components	R	4	
				C	4	
			Length (mm)		.965(24.5)	
ARCL	S		Number of Pins		6	10
			Number of Components	R	4	8
				C	4	8
			Length (mm)		.689(17.5)	1.083(27.5)
ARCL	X		Number of Pins		5	9
			Number of Components	R	4	8
				C	4	8
			Length (mm)		.571(14.5)	.965(24.5)
ARC	I		Number of Pins		10	8
			Number of Components	R	9	
				C	9	
			Length (mm)		1.083(27.5)	
ARC	8E		Number of Pins		8	
			Number of Components	R	6	
				C	1	
			Length (mm)		.866(22)	
ARC	10E		Number of Pins		10	
			Number of Components	R	6	
				C	2	
			Length (mm)		1.063(27)	

Dimensions: (mm)

ARCL



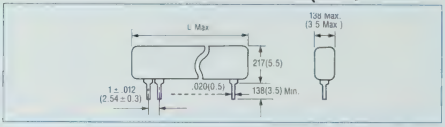
ARC



MOST COMMON RESISTOR/CAPACITOR MODULES: (ARC SERIES)

L	S		X	I	E
ARCL9L471J101K	ARCL6S102J101K	ARCL10S103J470K	ARCL5X103J102M	ARC10I220J101K	ARC8E680J103M
ARCL9L471J471K	ARCL6S102J471K	ARCL10S103J101K	ARCL5X103J103M	ARC10I500J220K	ARC8E101J103M
ARCL9L102J101K	ARCL6S103J101K	ARCL10S103J471K	ARCL9X103J101K	ARC10I500J101K	ARC8E151J103M
ARCL9L102J471K	ARCL6S103J471K	ARCL10S103J102M	ARCL9X103J221K	ARC10I680J101K	ARC10E560J103M
	ARCL10S102J101K	ARCL10S473J470K	ARCL9X473J101K	ARC10I750J220K	ARC10E680J103M
	ARCL10S102J221K	ARCL10S473J101K	ARCL9X473J221K	ARC10I750J101K	ARC10E101J103M

CNT SERIES DIMENSIONS: In. (mm)



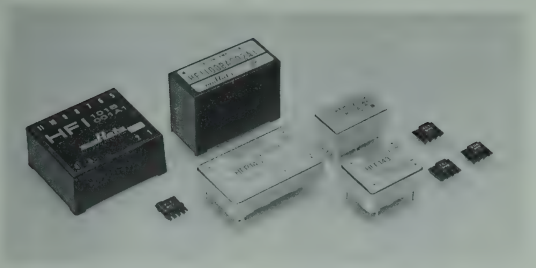
PART NUMBERING SYSTEM

CNTL	L	8	X	W	102M
C-Module CNTL	Series: L	Number of Pins	Type of circuit	Lead Pitch	Capacitance Value and Tolerance

MOST COMMON CAPACITOR MODULES: (CNT SERIES)

Circuit	Capacitance /1 Element	Cap. Rating	Cap. Tol. (%)	Temp. Char.	Part Number	Part Number	Part Number	Part Number
	47pF	50VDC	10	COG	—	—	CNTL9XW470K	—
	100pF	50VDC	10	COG	CNTL5XW101K	CNTL8XW101K	CNTL9XW101K	CNTL10XW101K
	470pF	50VDC	10	COG	CTNL5XW471K	—	CNTL9XW471K	—
	1000pF	50VDC	20	X7R	—	CNTL8XW102M	CNTL9XW102M	CNTL10XW102M
	10000pF	25VDC	20	X7R	—	CNTL8XW103M	CNTL9XW103M	CNTL10XW103M
	.01μF	16VDC	−20,+80	Y5V	—	CNTL8XW104Z	CNTL9XW104Z	CNTL10XW104Z
	# of Pins				5	8	9	10
	# of Elements				4	7	8	9
	Length				.571 (14.5)	.866 (22.0)	.965 (24.5)	1.063 (27.0)
	Top.				−35°C to +85°C			
	Tstg.				−40°C to +85°C			

HYBRID IC/FUNCTIONAL



Murata Erie Functional Hybrids include such devices as Loop Current Detectors, DC-DC Converters, Ceralock Oscillators, and Isolation Amplifiers. These products are developed by Murata Erie Hybrid IC engineers utilizing the latest computer aided engineering CAD/CAM systems. This "black box" approach allows Murata Erie to achieve customers' functional requirements, while realizing a mass produced Hybrid IC design. This combination of design and manufacturing control can greatly reduce the "time to market" for our customers.

CURRENT DETECTOR

Detects hook on/off of external telephone used with modems. To work with currents over 10 mA and 15 mA. Most suitable for loop current detection in Network Control Unit (NCU).

APPLICATION

- Facsimile
- Cordless Phone
- Modems
- PC Modems

FEATURES

- High precision
- 3.75KV AC isolation
- Low input impedance
- Ultra small SIP
- Highly reliable
- Replaces costly and less reliable photo couplers and high sensitive relays.

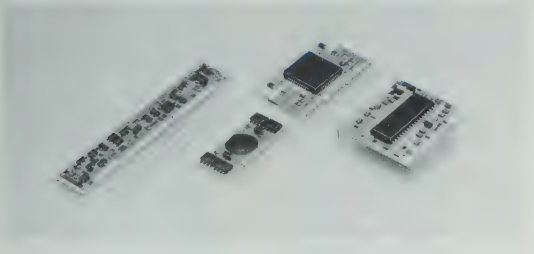
CURRENT DETECTORS/ELECTRICAL CHARACTERISTICS

Part Number		HFS113F001A1	HFS110F002A1
Supply Voltage		5V±5%	5V±5%
Current Range Detection	High	15mA	10mA
	Low	5mA	0mA
Power Consumption		10mA @ 25°C	—
Input Resistance		7 ohm max.	7 ohm max.
Input Inductance @ 1KHz		700μH	700μH
Size (SIP) mm		27L × 10W × 19H	27L × 10W × 19H
Operating/Storage Temperature Range		0°C ∿ 50°C / −10°C ∿ +80°C	

SCSI — SMALL COMPUTER SYSTEM INTERFACE SWITCHING TERMINATOR

Part Number	Application	Size (mm) L × H × W
H8D2392	9 Line Passive Type for Single Ended (220 ohms/330 ohms) (12 Pin SIP)	28 × 12 × 6 (SIP)
H8D2459	9 Line "Active" Terminator (Includes Voltage Regulator) (12 Pin SIP)	37 × 11 × 6 (SIP)

HYBRID IC/CUSTOM



Murata Erie's Total Hybrid System is also prepared to accept customers' own proprietary circuit designs. A highly advanced Hybrid IC development and automated production system can help to greatly reduce lead time, increase quality, improve reliability, and maintain security of each customer's proprietary circuit design. An additional benefit is realized by the customer in increasing their assembly line efficiency, reducing component counts, overall design size and weight reduction, and greatly reduce "time to market" cycle.

CUSTOM MODULES

Murata Erie offers custom Thick Film Hybrid Module design engineering and production capabilities. Our advanced computer aided design and manufacturing (CAD/CAM) systems allow us to respond to your various needs with quality and speed. If you have an application that could use our established Thick Film Technology, please contact us for engineering consultation.

Specifications	Resistor	Chip Monolithic Ceramic Capacitor
Resistance/ Capacitance Range	10Ω±, 10Meg Ω	1pF to 1μF
Tolerance	±0.5%	±1%
TCR/TCC (Min.)	±100ppm/°C	±60ppm/°C
Rated Wattage/Voltage (Max.)	0.5W/Element	100VDC
Semiconductors	Please define	

ORDERING INFORMATION

Please provide the following information when inquiring about custom modules:

- Functional description of circuit
- Application
- Resistor and capacitor values and tolerance if known
- Manufacturer and part number of all active devices (Semiconductors)
- Package type preferred (SIP or DIP)
- Package dimensions (L x W x H)
- Your target cost for module
- Your development schedule requirements
- Your production schedule
- Expected annual usage (EAU)

CAPACITORS— CHIP, MONOLITHIC

- Miniature size
- Wide capacitance, TC, voltage and tolerance range
- Industry standard sizes
- 8mm and 12mm tape and reel for auto-placements
- Barrier layer termination systems for wave, reflow or vapor phase solder
- Largest production volume and capacity in the industry

★KIT-GRM39

Part No.	Cap.	Tol.
COG 100V, 50 each value		
GRM39COG010B100AB	1 pF	± .1 pF
GRM39COG1R5B100AB	1.5	± .1
GRM39COG2R2B100AB	2.2	± .1
GRM39COG3R3B100AB	3.3	± .1
GRM39COG4R7B100AB	4.7	± .1
GRM39COG6R8C100AB	6.8	± .25
GRM39COG100D100AB	10	± .5
GRM39COG150J100AB	15	±5 %
GRM39COG220J100AB	22	±5
GRM39COG330J100AB	33	±5
GRM39COG470J100AB	47	±5
GRM39COG680J100AB	68	±5
GRM39COG101J100AB	100	±5
COG 50V, 50 each value		
GRM39COG010B050AB	1 pF	± .1 pF
GRM39COG1R5B050AB	1.5	± .1
GRM39COG2R2B050AB	2.2	± .1
GRM39COG3R3B050AB	3.3	± .1
GRM39COG4R7B050AB	4.7	± .1
GRM39COG6R8C050AB	6.8	± .25
GRM39COG100D050AB	10	± .5
GRM39COG150J050AB	15	±5 %
GRM39COG220J050AB	22	±5
GRM39COG330J050AB	33	±5
GRM39COG470J050AB	47	±5
GRM39COG680J050AB	68	±5
GRM39COG101J050AB	100	±5
GRM39COG151J050AB	150	±5
GRM39COG221J050AB	220	±5
X7R 50V, 50 each value		
GRM39X7R221K050AB	220pF	±10%
GRM39X7R331K050AB	330	±10
GRM39X7R471K050AB	470	±10
GRM39X7R681K050AB	680	±10
GRM39X7R102K050AB	1000	±10
GRM39X7R152K050AB	1500	±10
GRM39X7R222K050AB	2200	±10
GRM39X7R332K050AB	3300	±10
GRM39X7R472K050AB	4700	±10
GRM39X7R682K050AB	6800	±10
GRM39X7R103K050AB	.01μF	±10
X7R 25V, 50 each value		
GRM39X7R472K025AB	4700pF	±10%
GRM39X7R682K025AB	6200	±10
GRM39X7R103K025AB	.01μF	±10
X7R 16V, 50 each value		
GRM39X7R153K016AB	.015μF	±10%
GRM39X7R223K016AB	.022	±10
GRM39X7R333K016AB	.033	±10
Y5V 50V. 50 each value		
GRM39Y5V152Z050AB	1500pF	+80, −20%
GRM39Y5V222Z050AB	2200	+80, −20
GRM39Y5V332Z050AB	3300	+80, −20
GRM39Y5V472Z050AB	4700	+80, −20
GRM39Y5V682Z050AB	6800	+80, −20

★All kits are available through authorized Murata Erie Distributors.

★KIT-GRM39 (continued)

Part No.	Cap.	Tol.
Y5V 50V, 50 each value (continued)		
GRM39Y5V103Z050AB	.01 μF	+80, −20%
GRM39Y5V153Z050AB	.015	+80, −20
GRM39Y5V223Z050AB	.022	+80, −20
Y5V 25V, 50 each value		
GRM39Y5V152Z025AB	1500pF	+80, −20%
GRM39Y5V222Z025AB	2200	+80, −20
GRM39Y5V332Z025AB	3300	+80, −20
GRM39Y5V472Z025AB	4700	+80, −20
GRM39Y5V682Z025AB	6800	+80, −20
GRM39Y5V103Z025AB	.01 μF	+80, −20
GRM39Y5V153Z025AB	.015	+80, −20
GRM39Y5V223Z025AB	.022	+80, −20
GRM39Y5V333Z025AB	.033	+80, −20
GRM39Y5V473Z025AB	.047	+80, −20
Y5V 16V, 50 each value		
GRM39Y5V333Z016AB	.033μF	+80, −20%
GRM39Y5V473Z016AB	.047	+80, −20
GRM39Y5V683Z016AB	.068	+80, −20
GRM39Y5V104Z016AB	.1	+80, −20

★KIT-GRM40

Part No.	Cap.	Tol.
COG 50V, 50 each value		
GRM40COG010C050AB	1pF	± .25%
GRM40COG020C050AB	2	± .25
GRM40COG030C050AB	3	± .25
GRM40COG040C050AB	4	± .25
GRM40COG050D050AB	5	± .5
GRM40COG060D050AB	6	± .5
GRM40COG070D050AB	7	± .5
GRM40COG080D050AB	8	± .5
GRM40COG090D050AB	9	± .5
GRM40COG100D050AB	10	± .5
GRM40COG120J050AB	12	±5 %
GRM40COG150J050AB	15	±5
GRM40COG180J050AB	18	±5
GRM40COG220J050AB	22	±5
GRM40COG330J050AB	33	±5
GRM40COG390J050AB	39	±5
GRM40COG470J050AB	47	±5
GRM40COG560J050AB	56	±5
GRM40COG680J050AB	68	±5
GRM40COG820J050AB	82	±5
GRM40COG101J050AB	100	±5
GRM40COG121J050AB	120	±5
GRM40COG151J050AB	150	±5
GRM40COG181J050AB	180	±5
GRM40COG221J050AB	220	±5
GRM40COG271J050AB	270	±5
GRM40COG331J050AB	330	±5
GRM40COG391J050AB	390	±5
GRM40COG471J050AB	470	±5
X7R 50V, 100 each value		
GRM40X7R391K050AB	390pF	±10%
GRM40X7R471K050AB	470	±10
GRM40X7R561K050AB	560	±10
GRM40X7R681K050AB	680	±10
GRM40X7R821K050AB	820	±10
GRM40X7R102K050AB	1000	±10
GRM40X7R122K050AB	1200	±10
GRM40X7R152K050AB	1500	±10
GRM40X7R182K050AB	1800	±10
GRM40X7R222K050AB	2200	±10
GRM40X7R272K050AB	2700	±10
GRM40X7R332K050AB	3300	±10
GRM40X7R392K050AB	3900	±10
GRM40X7R472K050AB	4700	±10
GRM40X7R562K050AB	5600	±10
GRM40X7R682K050AB	6800	±10
GRM40X7R822K050AB	8200	±10

CAPACITORS— CHIP, MONOLITHIC (continued)

★ **KIT-GRM40 (continued)**

Part No.	Cap.	Tol.
X7R 50V, 100 each value (continued)		
GRM40X7R103K050AB	.01 μF	±10%
GRM40X7R123K050AB	.012	±10
GRM40X7R153K050AB	.015	±10
GRM40X7R183K050AB	.018	±10
GRM40X7R223K050AB	.022	±10
Z5U 50V, 100 each value		
GRM40Z5U103M050AB	.01 μF	±20%
GRM40Z5U123M050AB	.012	±20
GRM40Z5U183M050AB	.018	±20
GRM40Z5U223M050AB	.022	±20
GRM40Z5U333M050AB	.033	±20
GRM40Z5U473M050AB	.047	±20
Y5V, 25V, 100 each value		
GRM40Y5V104Z25V	.1 μF	+80, −20%

★ **KIT-GRM42-6**

Part No.	Cap.	Tol.
COG 50V, 50 each value		
GRM42-6COG100D050AB	10pF	± .5pF
GRM42-6COG120J050AB	12	±5 %
GRM42-6COG150J050AB	15	±5
GRM42-6COG180J050AB	18	±5
GRM42-6COG220J050AB	22	±5
GRM42-6COG330J050AB	33	±5
GRM42-6COG390J050AB	39	±5
GRM42-6COG470J050AB	47	±5
GRM42-6COG560J050AB	56	±5
GRM42-6COG680J050AB	68	±5
GRM42-6COG820J050AB	82	±5
GRM42-6COG101J050AB	100	±5
GRM42-6COG121J050AB	120	±5
GRM42-6COG151J050AB	150	±5
GRM42-6COG181J050AB	180	±5
GRM42-6COG221J050AB	220	±5
GRM42-6COG271J050AB	270	±5
GRM42-6COG331J050AB	330	±5
GRM42-6COG391J050AB	390	±5
GRM42-6COG471J050AB	470	±5
GRM42-6COG561J050AB	560	±5
GRM42-6COG681J050AB	680	±5
GRM42-6COG821J050AB	820	±5
GRM42-6COG102J050AB	1000	±5
X7R 50V, 100 each value		
GRM42-6X7R331K050AB	330pF	±10%
GRM42-6X7R391K050AB	390	±10
GRM42-6X7R471K050AB	470	±10
GRM42-6X7R561K050AB	560	±10
GRM42-6X7R681K050AB	680	±10
GRM42-6X7R821K050AB	820	±10
GRM42-6X7R102K050AB	1000	±10
GRM42-6X7R122K050AB	1200	±10
GRM42-6X7R152K050AB	1500	±10
GRM42-6X7R182K050AB	1800	±10
GRM42-6X7R222K050AB	2200	±10
GRM42-6X7R272K050AB	2700	±10
GRM42-6X7R332K050AB	3300	±10
GRM42-6X7R392K050AB	3900	±10
GRM42-6X7R472K050AB	4700	±10
GRM42-6X7R562K050AB	5600	±10
GRM42-6X7R682K050AB	6800	±10
GRM42-6X7R822K050AB	8200	±10
GRM42-6X7R103K050AB	.01 μF	±10
GRM42-6X7R123K050AB	.012	±10

★ **KIT-GRM42-6 (continued)**

Part No.	Cap.	Tol.
X7R 50V, 100 each value (continued)		
GRM42-6X7R153K050AB	.015μF	±10%
GRM42-6X7R183K050AB	.018	±10
GRM42-6X7R223K050AB	.022	±10
GRM42-6X7R273K050AB	.027	±10
GRM42-6X7R333K050AB	.033	±10
GRM42-6X7R393K050AB	.039	±10
GRM42-6X7R473K050AB	.047	±10
GRM42-6X7R563K050AB	.056	±10
GRM42-6X7R683K050AB	.068	±10
GRM42-6X7R823K050AB	.082	±10
GRM42-6X7R104K050AB	.1	±10
Z5U 50V, 100 each value		
GRM42-6Z5U473M050AB	.047μF	±20%
GRM42-6Z5U563M050AB	.056	±20
GRM42-6Z5U683M050AB	.068	±20
GRM42-6Z5U823M050AB	.082	±20
GRM42-6Z5U104M050AB	.1	±20

CAPACITORS— CHIP MONOLITHIC, MICROWAVE

- Miniature sizes
- Very high Q at high frequencies
- High RF power capabilities
- Impervious to adverse environmental conditions
- Low dissipation factors
- Perfect retrace capability
- High temperature stability
- Low noise

★ **KIT-MA18-001**
(Evaluation Kit)

Part No.	Cap.	Tol.
P90 150V, 5 each value		
MA181R0B	1.0pF	± .1 pF
MA181R8C	1.8	± .25
MA182R7D	2.7	± .5
MA183R3D	3.3	± .5
MA184R7D	4.7	± .5
MA185R7D	5.6	± .5
MA188R2K	8.2	±10 %
MA18100K	10	±10
MA18120K	12	±10
MA18150K	15	±10
MA18220K	22	±10
MA18360K	36	±10
MA18470K	47	±10
MA18560K	56	±10
MA18820K	82	±10

★All kits are available through authorized Murata Erie Distributors.

CAPACITORS— CHIP MONOLITHIC, MICROWAVE (continued)

★ **KIT-MA18-002**
(Tune Kit)

Part No.	Cap.	Tol.
P90 150V, 5 each value		
MA180R3B	0.3pF	± .1 pF
MA180R4B	0.4	± .1
MA180R5B	0.5	± .1
MA180R6B	0.6	± .1
MA180R7B	0.7	± .1
MA180R8B	0.8	± .1
MA180R9B	0.9	± .1
MA181R0B	1.0	± .1
MA181R2B	1.2	± .1
MA181R4B	1.4	± .1
MA181R5B	1.5	± .1
MA181R6B	1.6	± .1
MA181R8B	1.8	± .1
MA181R9B	1.9	± .1
MA182R0B	2.0	± .1
MA182R1B	2.1	± .1
MA182R2B	2.2	± .1
MA182R4B	2.4	± .1
MA182R7B	2.7	± .1
MA183R0B	3.0	± .1
MA183R6C	3.6	± .25
MA183R9C	3.9	± .25
MA184R7C	4.7	± .25
MA185R1C	5.1	± .25
MA185R6C	5.6	± .25
MA186R2C	6.2	± .25
MA186R8J	6.8	±5 %
MA188R2J	8.2	±5
MA189R1J	9.1	±5
MA18100J	10	±5

★ **KIT-MA18-003**
(Designer Kit)

Part No.	Cap.	Tol.
P90 150V, 5 each value		
MA181R0B	1.0pF	± .1 pF
MA181R3B	1.3	± .1
MA181R6B	1.6	± .1
MA181R9B	1.9	± .1
MA182R1B	2.1	± .1
MA182R7C	2.7	± .25
MA183R3C	3.3	± .25
MA183R9C	3.9	± .25
MA184R7C	4.7	± .25
MA185R6C	5.6	± .25
MA186R8J	6.8	± 5 %
MA187R5J	7.5	± 5
MA188R5J	8.2	± 5
MA189R1J	9.1	± 5
MA18100J	10	± 5
MA18120J	12	± 5
MA18150J	15	± 5
MA18180J	18	± 5
MA18220J	22	± 5
MA18240J	24	± 5
MA18270J	27	± 5
MA18330J	33	± 5
MA18360J	36	± 5
MA18390J	39	± 5
MA18470J	47	± 5
MA18560J	56	± 5
MA18680K	68	±10
MA18750K	75	±10
MA18820K	82	±10
MA18910K	91	±10

★All kits are available through authorized Murata Erie Distributors.

★ **KIT-MA28-001 (1)**
★ **KIT-MA22-001MS (2)**
(Evaluation Kit)

Part No.	Cap.	Tol.
P90 500V, 5 each value		
MA281R0C	1.0pF	± .25pF
MA282R2D	2.2	± .5
MA283R6D	3.6	± .5
MA285R6D	5.6	± .5
MA287R5D	7.5	± .5
MA28110J	11	± 5 %
MA28160J	16	± 5
MA28240J	24	± 5
MA28360J	36	± 5
MA28510J	51	± 5
MA28750J	75	± 5
MA28101J	100	± 5
MA28201J	200*	± 5
MA28471M	470*	±20
MA28621M	620**	±20

*300VDC **200VDC

★ **KIT-MA28-002 (1)**
★ **KIT-MA22-002MS (2)**
(Tune Kit)

Part No.	Cap.	Tol.
P90 150V, 5 each value		
MA280R3B	0.3pF	± .1pF
MA280R4B	0.4	± .1
MA280R5B	0.5	± .1
MA280R6B	0.6	± .1
MA280R7B	0.7	± .1
MA280R8B	0.8	± .1
MA280R9B	0.9	± .1
MA281R0B	1.0	± .1
MA281R2B	1.2	± .1
MA281R4B	1.4	± .1
MA281R5B	1.5pF	± .1 pF
MA281R6B	1.6	± .1
MA281R8B	1.8	± .1
MA281R9B	1.9	± .1
MA282R0B	2.0	± .1
MA282R1B	2.1	± .1
MA282R2B	2.2	± .1
MA282R4B	2.4	± .1
MA282R7B	2.7	± .1
MA283R0B	3.0	± .1
MA283R6C	3.6	± .25
MA283R9C	3.9	± .25
MA284R7C	4.7	± .25
MA285R1C	5.1	± .25
MA285R6C	5.6	± .25
MA286R2C	6.2	± .25
MA286R8J	6.8	±5 %
MA288R2J	8.2	±5
MA289R1J	9.1	±5
MA28100J	10	±5

★ **KIT-MA28-003 (1)**
★ **KIT-MA22-003MS (2)**
(Designer Kit)

Part No.	Cap.	Tol.
P90 500V, 5 each value		
MA280R3B	0.3pF	± .1 pF
MA280R4B	0.4	± .1
MA280R5B	0.5	± .1
MA280R6B	0.6	± .1
MA280R7B	0.7	± .1
MA280R8B	0.8	± .1
MA280R9B	0.9	± .1
MA281R2B	1.2	± .1
MA281R5C	1.5	± .25
MA281R8C	1.8	± .25

CAPACITORS— CHIP MONOLITHIC, MICROWAVE (continued)

★ **KIT-MA28-003 (1)**
★ **KIT-MA22-003MS (2)**
(Designer Kit)

Part No.	Cap.	Tol.
P90 500V, 5 each value		
MA282R2C	2.2	± .25
MA282R7C	2.7	± .25
MA283R0C	3.0	± .25
MA283R3C	3.3	± .25
MA283R6C	3.6	± .25
MA284R3C	4.3	± .25
MA285R6C	5.6	± .25
MA286R2C	6.2	± .25
MA286R8J	6.8	± 5 %
MA287R5J	7.5	± 5
MA288R2J	8.2	± 5
MA289R1J	9.1	± 5
MA28100J	10	± 5
MA28110J	11	± 5
MA28130J	13	± 5
MA28160J	16	± 5
MA28180J	18	± 5
MA28240J	24	± 5
MA28270J	27	± 5
MA28300J	30	± 5
MA28330J	33	± 5
MA28360J	36	± 5
MA28430J	43	± 5
MA28470J	47	± 5
MA28560K	56	±10
MA28620K	62	±10
MA28680K	68	±10
MA28910K	91	±10
MA28131K	130*	±10
MA28161K	160*	±10
MA28181K	180*pF	±10%
MA28201K	200**	±10
MA28221K	220**	±10
MA28241K	240**	±10
MA28301K	300**	±10
MA28361M	360**	±20
MA28431M	430**	±20
MA28471M	470**	±20
MA28511M	510**	±20
MA28561M	560**	±20
MA28621M	620**	±20

*300VDC **200VDC

(1) Termination-Palladium silver, nickel interface, solder (SN62)
(2) Termination-Microstrip leads

CAPACITORS— RADIAL LEADED, MONOLITHIC

- Wide capacitance, T.C., voltage and tolerance range
- Industry standard sizes
- Tape and Reel available for auto insertion
- Various lead spacing available
- Marking standard or to customer specification

★ **KIT-RPE**

Part No.	Cap.	Tol.
COG 100V, 50 each value		
RPE110COG1R0C100V	1 pF	± .25pF
RPE110COG2R2C100V	2.2	± .25
RPE110COG4R7C100V	4.7	± .25
RPE110COG8R2D100V	8.2	± .25
RPE110COG100D100V	10	±5 %
RPE110COG180J100V	18	±5
RPE110COG220J100V	22	±5
RPE110COG330J100V	33	±5
RPE110COG470J100V	47	±5
RPE110COG680J100V	68	±5
RPE110COG820J100V	82	±5
RPE122COG101J100V	100	±5
RPE122COG221J100V	220	±5
RPE122COG331J100V	330	±5
RPE122COG471J100V	470	±5
RPE122COG821J100V	820	±5
X7R 100V, 50 each value		
RPE122X7R102K100V	1,000pF	±10%
RPE122X7R222K100V	2,200	±10
RPE122X7R472K100V	4,700	±10
RPE122X7R103K100V	10,000	±10
RPE122X7R223K100V	22,000	±10
RPE122X7R333K100V	33,000	±10
RPE122X7R473K100V	47,000	±10
RPE122X7R104K100V	100,000	±10
Z5U 100V, 50 each value		
RPE122Z5U103M100V	10,000pF	±20%
RPE122Z5U104M100V	100,000	±20
Z5U 50V, 50 each value		
RPE122Z5U224M050V	220,000pF	±20%
RPE122Z5U334M050V	330,000	±20
RPE123Z5U474M050V	470,000	±20
RPE123Z5U105M050V	1,000,000	±20

★ **KIT-RPE-TR***

Part No.	Cap.	Tol.
COG 100V, 50 each value		
RPE122COG1R0C100V	1 pF	± .25pF
RPE122COG2R2C100V	2.2	± .25
RPE122COG4R7C100V	4.7	± .25
RPE122COG8R2D100V	8.2	± .25
RPE122COG100D100V	10	±5 %
RPE122COG180J100V	18	±5
RPE122COG220J100V	22	±5
RPE122COG330J100V	33	±5
RPE122COG470J100V	47	±5
RPE122COG680J100V	68	±5
RPE122COG820J100V	82	±5
RPE122COG101J100V	100	±5
RPE122COG221J100V	220	±5
RPE122COG331J100V	330	±5
RPE122COG471J100V	470	±5
RPE122COG821J100V	820	±5

★All kits are available through authorized Murata Erie Distributors.

CAPACITORS— RADIAL LEADED, MONOLITHIC (continued)

★ **KIT-RPE-TR* (continued)**

Part No.	Cap.	Tol.
X7R 100V, 50 each value		
RPE122X7R102K100V	1,000pF	±10%
RPE122X7R222K100V	2,200	±10
RPE122X7R472K100V	4,700	±10
RPE122X7R103K100V	10,000	±10
RPE122X7R223K100V	22,000	±10
RPE122X7R333K100V	33,000	±10
RPE122X7R473K100V	47,000	±10
RPE122X7R104K100V	100,000	±10
Z5U 100V, 50 each value		
PRE122Z5U103M100V	10,000pF	±20%
RPE122Z5U104M100V	100,000	±20
Z5U 50V, 50 each value		
RPE122Z5U224M050V	220,000pF	±20%
RPE122Z5U334M050V	330,000	±20
RPE123Z5U474M050V	470,000	±20
RPE123Z5U105M050V	1,000,000	±20

*Supplied with typical Tape & Reel lead forms.

CAPACITORS— HIGH VOLTAGE

- Epoxy resin encapsulated
- Small size
- Highly reliable internal construction
- Wide selection of values
- Up to 40 KVDC working voltage

★ **KIT-HIGH VOLTAGE**

Part No.	Cap.	KV	Tol.	Qty.
DHR12Y5P471M7.5KV	470pF	7.5	±20%	25
DHR15Y5P120M7.5KV	1,000	7.5	±20	25
DHR17Y5P102M10KV	1,000	10	±20	25
DHR9Y5P101M15KV	100	15	±20	25
DHR15Y5P471M15KV	470	15	±20	25
DHR20Y5P102M15KV	1,000	15	±20	25
DHS30N4700122M10KV	1,200	10	±20	5
DHS38N4700192M15KV	1,900	15	±20	5
DHS24Z5V461Z30KV	460	30	+80, −20	5
DHS30N4700591M30KV	590	30	±20	5
DHS60Z5V272Z40KV	2,700	40	+80, −20	5
DCC510N750101K	100	7.5	±10	1
DCC507N750101K	100	15	±10	1

CAPACITORS— DISC

- Wide capacitance range, T.C., voltage and tolerance range
- Industry standard capacitance values
- Available for auto insertion
- Various lead spacing available
- Safety capacitors are U.L., CSA, VDE, etc. listed

★ **KIT-DISC-1**
(EIA Class I)

Part No.	Cap.	Tol.
COG 1KV, 25 each value		
DD05-B10NP01R0C1KV	1.0pF	± .25pF
DD05-B10NP01R2C1KV	1.2	± .25
DD05-B10NP01R5C1KV	1.5	± .25
DD05-B10NP01R8C1KV	1.8	± .25
DD05-B10NP02R2C1KV	2.2	± .25
DD05-B10NP02R7C1KV	2.7	± .25
DD05-B10NP03R3C1KV	3.3	± .25
DD05-B10NP03R9C1KV	3.9	± .25
DD05-B10NP04R7C1KV	4.7	± .25
DD05-B10NP05R6D1KV	5.6	± .50
DD05-B10NP06R8D1KV	6.8	± .50
DD05-B10NP08R2D1KV	8.2	± .50
DD05-B10NP0100D1KV	10	± .50
DD05-B10NP0120J1KV	12	±5 %
DD05-B10NP0150J1KV	15	±5
DD05-B10NP0180J1KV	18	±5
DD05-B10NP0220J1KV	22	±5
DD06-B10NP0270J1KV	27	±5
DD07-B10NP0330J1KV	33	±5
DD07-B10NP0390J1KV	39	±5
DD07-B10NP0470J1KV	47	±5
DD08-B10NP0560J1KV	56	±5
DD09-B10NP0680J1KV	68	±5
DD09-B10NP0820J1KV	82	±5
DD10-B10NP0101J1KV	100	±5
DD10-B10NP0121J1KV	120	±5
DD11-B10NP0151J1KV	150	±5
DD12-B10NP0181J1KV	180	±5
DD14-F10NP0221J1KV	220	±5
DD14-F10NP0271J1KV	270	±5
COG 100V, 25 each value		
DD104-L10NP01R0C100V	1.0pF	± .25pF
DD104-L10NP01R2C100V	1.2	± .25
DD104-L10NP01R5C100V	1.5	± .25
DD104-L10NP01R8C100V	1.8	± .25
DD104-L10NP02R2C100V	2.2	± .25
DD104-L10NP02R7C100V	2.7	± .25
DD104-L10NP03R3C100V	3.3	± .25
DD104-L10NP03R9C100V	3.9	± .25
DD104-L10NP04R7C100V	4.7	± .25
DD104-L10NP05R6D100V	5.6	± .50
DD104-L10NP06R8D100V	6.8	± .50
DD104-L10NP08R2D100V	8.2	± .50
DD104-L10NP0100D100V	10	± .50
DD104-L10NP0120J100V	12	±5 %
DD104-L10NP0150J100V	15	±5
DD104-L10NP0180J100V	18	±5
DD104-L10NP0220J100V	22	±5
DD105-L10NP0270J100V	27	±5
DD105-L10NP0330J100V	33	±5
DD105-L10NP0390J100V	39	±5
DD106-L10NP0470J100V	7	±5
DD106-L10NP0560J100V	56	±5
DD107-L10NP0680J100V	68	±5
DD107-L10NP0820J100V	82	±5
DD107-L10NP0101J100V	100	±5
DD109-L10NP0121J100V	120	±5
DD109-L10NP0151J100V	150	±5
DD110-L10NP0181J100V	180	±5
DD111-L10NP0221J100V	220	±5
DD112-L10NP0271J100V	270	±5

★All kits are available through authorized Murata Erie Distributors.

CAPACITORS— DISC (continued)

★ **KIT-DISC-1 (continued)**

Part No.	Cap.	Tol.
COG 50V, 25 each value		
DD003-CK010C50V	1.0pF	± .25pF
DD003-SL1R5C50V	1.5	± .25
DD003-CH100D50V	10	± .50
DD003-CH120J50V	12	±5 %
DD003-CH150J50V	15	±5
DD003-CH180J50V	18	±5
DD003-CH220J50V	22	±5
DD003-CH270J50V	27	±5
DD003-CH330J50V	33	±5
DD003-CH390J50V	39	±5
DD003-CH470J50V	47	±5
DD003-SL560J50V	56	±5
DD003-SL680J50V	68	±5
DD003-SL820J50V	82	±5
DD003-SL101J50V	100	±5
DD003-SL121J50V	120	±5

★ **KIT-DISC-2**
(EIA Class II & III)

Part No.	Cap.	Tol.
Y5P, Y5U 1KV, 25 each value		
DD05-B10Y5P101K1KV	100pF	±10%
DD05-B10Y5P121K1KV	120	±10
DD05-B10Y5P151K1KV	150	±10
DD05-B10Y5P181K1Kv	180	±10
DD05-B10Y5P221K1KV	220	±10
DD05-B10Y5P271K1KV	270	±10
DD05-B10Y5P331K1KV	330	±10
DD05-B10Y5P391K1KV	390	±10
DD05-B10Y5P471K1Kv	470	±10
DD05-B10Y5P561K1KV	560	±10
DD06-B10Y5P681K1KV	680	±10
DD06-B10Y5P821K1KV	820	±10
DD07-B10Y5P102K1KV	1,000	±10
DD07-B10Y5P122K1KV	1,200	±10
DD08-B10Y5P152K1KV	1,500	±10
DD08-B10Y5P182K1KV	1,800	±10
DD09-B10Y5P222K1KV	2,200	±10
DD10-B10Y5P272K1KV	2,700	±10
DD11-B10Y5P332K1KV	3,300	±10
DD11-B10Y5P392K1KV	3,900	±10
DD09-B10Y5U472M1KV	4,700	±20
DD14-F10Y5P562K1KV	5,600	±10
DD10-B10Y5U682M1KV	6,800	±20
DD12-B10Y5U103M1KV	10,000	±20
DD16-F10Y5P103K1KV	10,000	±10
DD16-F10Y5U203M1KV	20,000	±20
Y5P, Y5U, Y5V 100V, 25 each value		
DD104-L10Y5P101K100V	100pF	±10%
DD104-L10Y5P121K100V	120	±10
DD104-L10Y5P151K100V	150	±10
DD104-L10Y5P181K100V	180	±10
DD104-L10Y5P221K100V	220	±10
DD104-L10Y5P271K100V	270	±10
DD104-L10Y5P331K100V	330	±10
DD104-L10Y5P391K100V	390	±10
DD104-L10Y5P471K100V	470	±10
DD104-L10Y5P561K100V	560	±10
DD104-L10Y5P681K200V	680	±10
DD104-L10Y5P821K100V	820	±10
DD104-L10Y5P102K100V	1,000	±10
DD105-L10Y5P122K100V	1,200	±10
DD105-L10Y5P152K100V	1,500	±10
DD105-L10Y5P182K100V	1,800	±10
DD106-L10Y5P222K100V	2,200	±10
DD106-L10Y5P272K100V	2,700	±10
DD107-L10Y5P332K100V	3,300	±10
DD107-L10Y5P392K100V	3,900	±10
DD108-L10Y5P472K100V	4,700	±10
DD109-L10Y5P562K100V	5,600	±10
DD105-L10Y5V682Z100V	6,800	+80, −20
DD106-L10Y5V103Z100V	10,000	+80, −20

★All kits are available through authorized Murata Erie Distributors.

★ **KIT-DISC-2 (continued)**
(EIA Class II & III)

Part No.	Cap.	Tol.
Y5P, Y5U, Y5V 100V, 25 each value (continued)		
DD109-L10Y5U103M100V	10,000pF	±20%
DD112-L10Y5P103K100V	10,000	±10
DD107-L10Y5V203Z100V	20,000	+80, −20
DD108-L10Y5V223Z100V	22,000	+80, −20
DD109-L10Y5V333Z100V	33,000	+80, −20
B, F 50V, 25 each value		
DD003B101K50V	100pF	±10%
DD003B151K50V	150	±10
DD003B181K50V	180	±10
DD003B221K50V	220	±10
DD003B271K50V	270	±10
DD003B331K50V	330	±10
DD003B391K50V	390	±10
DD003B471K50V	470	±10
DD003B561K50V	560	±10
DD003B681K50V	680	±10
DD003B821K50V	820	±10
DD003B102K50V	1,000	±10
DD003B122K50V	1,200	±10
DD003B152K50V	1,500	±10
DD003F472Z50V	4,700	+80, −20

★ **KIT-DISC-3**
(EIA Class IV)

Part No.	Cap.	Tol.
Y5P, Y5U, Y5V 50, 25, 12V 25 each value		
DD340-L10Y5P103M25V	.01 μF	±20%
DD304-L10Y5U103Z50V	.01	+80, −20
DD350-L10Y5P103M50V	.01	±20
DD350-L10Y5P153M25V	.015	±20
DD304-L10Y5U153Z50V	.015	+80, −20
DD360-L10Y5P153M50V	.015	±20
DD360-L10Y5P223M25V	.022	±20
DD304-L10Y5V223Z50V	.022	+80, −20
DD380-L10Y5P223M50V	.022	±20
DD304-L10Y5V333Z25V	.033	+80, −20
DD305-L10Y5V333Z50V	.033	+80, −20
DD304-L10Y5V473Z25V	.047	+80, −20
DD380-L10Y5P473M25V	.047	±20
DD306-L10Y5V473Z50V	.047	+80, −20
DD310-L10Y5P473M50V	.047	±20
DD310-L10Y5P683M25V	.068	±20
DD312-L10Y5P683M50V	.068	±20
DD306-L10Y5V104Z25V	.1	+80, −20
DD312-L10Y5P104M25V	.1	±20
DD308-L10Y5V104Z50V	.1	+80, −20
DD314-F10Y5P104M50V	.1	±20
DD314-F10Y5P154M25V	.15	±20
DD308-L10Y5V224Z12V	.22	+80, −20
DD310-L10Y5V334Z12V	.33	+80, −20
DD312-L10Y5V474Z12V	.47	+80, −20
Y5S 25, 16, 12V 25 each value		
DD404-K10Y5S103K25V	.01 μF	±10%
DD404-K10Y5S153K25V	.015	±10
DD404-K10Y5S223K16V	.022	±10
DD405-L10Y5S223K25V	.022	±10
DD405-L10Y5S333K16V	.033	±10
DD406-L10Y5S333K25V	.033	±10
DD405-L10Y5S473K16V	.047	±10
DD407-L10Y5S473K25V	.047	±10
DD406-L10Y5S683K16V	.068	±10
DD408-L10Y5S683K25V	.068	±10
DD407-L10Y5S104K16V	.1 μF	±10%
DD410-L10Y5S104K25V	.1	±10
DD410-L10Y5S154K16V	.15	±10
DD410-L10Y5S224K12V	.22	±10
DD412-L10Y5S334K12V	.33	±10
DD414-F10Y5S474K12V	.47	±10
B,F 50, 16, 12V 25 each value		
DD003B103M16V	.01 μF	±20%
DD003F103Z50V	.01	+80, −20
DD003F223Z50V	.022	+80, −20
DD003F473Z12V	.047	+80, −20

CAPACITORS— SAFETY

★ **KIT-SAFETY-CAPACITOR**

- Meet UL, CSA, SEV, VDE, etc. standards

Part No.	Cap.	Tol.
400, 250, 125VAC 25 each value		
DE7090B101KVA1-KC	100pF	±10%
DE7090B151KVA1-KC	150	±10
DE7090B221KVA1-KC	220	±10
DE7090B331KVA1-KC	330	±10
DE7090B471KVA1-KC	470	±10
DE7090B102KVA1-KC	1,000	±10
DE7100F222MVA1-KC	2,200	±20
DE7120F332MVA1-KC	3,300	±20
DE7150F472MVA1-KC	4,700	±20
DE7100FZ472PVA1-KC	4,700	+100, −0
DE7150F103MVA1-KC	10,000	±20
DE7150FZ103PVA1-KC	10,000	+100, −0
DE2110F682MAC125-MX	6,800	±20
DE1910E472MACT4K-KD	4,700	±20
DE1410E222MACT4K-KD	2,200	±20

CAPACITORS— CHIP TRIMMING

- Miniature size
- Designed for auto-placement
- Can be immersed in flux and solder bath
- Can be cleaned with organic solvents

★ **KIT-TZSBOX-1**

Part No.	Min. Cap.	Max. Cap.	T.C.
TZ03, 8 each value			
TZ03Z2R3FR169	1.25pF	2.3pF	COG
TZ03Z050FR169	1.8	5.0	COG
TZ03Z070FR169	2.0	7.0	COG
TZ03Z100FR169	2.7	10.0	COG
TZ03N100FR169	2.1	10.0	N220
TZ03T110FR169	3.0	11.0	N450
TZ03T200FR169	4.2	20.0	N450
TZ03R200FR169	4.2	20	N750
TZ03R300FR169	5.2	30	N750
TZ03P450FR169	6.8	45	N1200
TZ03P600FR169	9.8	60	N1200
TZ03Z500FR169	6	50	COG
TZ03R900FR169	9	90	N750
TZB04, 10 each value			
TZB04Z030BC	1.4pF	3.0pF	COG
TZB04Z060BC	2.0	6.0	COG
TZB04N100BC	3.0	10.0	N150
TZB04R200BC	4.5	20.0	N750
TZB04P300BC	6.5	30.0	N1200
TZB04P400BC	9.0	40.0	N1200
TZB04Z250BC	4.0	25.0	COG
TZB04R500BC	7.0	50.0	N750

★ **KIT-TZSBOX-2**

Part No.	Min. Cap.	Max. Cap.	T.C.
TZB04, 10 each value			
TZB04Z030BA	1.4pF	3.0pF	COG
TZB04Z060BA	2.0	6.0	COG
TZB04N100BA	3.0	10.0	N150
TZB04R200BA	4.5	20.0	N750
TZB04P300BA	6.5	30.0	N1200
TZB04P400BA	9.0	40.0	N1200
TZB04Z250BA	4.0	25.0	COG
TZB04R500BA	7.0	50.0	N750
TZB04Z060BB	2.0	6.0	COG
TZB04N100BB	3.0	10.0	N150
TZB04R200BB	4.5	20.0	N750
TZB04P300BB	6.5	30.0	N1200
TZB04Z250BB	9.0	40.0	N1200
TZB04R500BB	7.0	50.0	N750
TZB04Z060BE	2.0	6.0	COG
TZB04N100BE	3.0	10.0	N150
TZC03, 10 each value			
TZC03Z060A110	2.0pF	6.0pF	COG
TZC03R100A110	3.0	10.0	N750
TZC03P200A110	5.0	20.0	N1200

★ **KIT-TZSBOX-3**

Part No.	Min. Cap.	Max. Cap.	T.C.
TZB04, 10 each value			
TZB04Z030BA	1.4pF	3.0pF	COG
TZB04Z060BA	2.0	6.0	COG
TZB04N100BA	3.0	10.0	N150
TZB04R200BA	4.5	20.0	N750
TZB04P300BA	6.5	30.0	N1200

★ **KIT-TZSBOX-3 (continued)**

Part No.	Min. Cap.	Max. Cap.	T.C.
TZB04, 10 each value (continued)			
TZB04P400BA	9.0pF	40.0pF	N1200
TZB04Z250BA	4.0	25.0	COG
TZB04R500BA	7.0	50.0	N750
TZB04Z060BB	2.0	6.0	COG
TZB04N100BB	3.0	10.0	N150
TZB04R200BB	4.5	20.0	N750
TZB04P300BB	6.5	30.0	N1200
TZB04Z060BC	2.0	6.0	COG
TZB04N100BC	3.0	10.0	N150
TZB04R200BC	4.5	20.0	N750
TZB04Z060BD	2.0	6.0	COG
TZB04N100BD	3.0	10.0	N150
TZB04R200BD	4.5	20.0	N750
TZB04Z060BE	2.0	6.0	COG
TZB04N100BE	3.0	10.0	N150
TZB04R200BE	4.5	20.0	N750

★ **KIT-TZSBOX-4**

Part No.	Min. Cap.	Max. Cap.	T.C.
TZ03, 8 each value			
TZ03Z070FR169	2.0pF	7.0pF	COG
TZ03Z100FR169	2.7	10.0	COG
TZ03T110FR169	3.0	11.0	N450
TZ03T200FR169	4.2	20.0	N450
TZ03R200FR169	4.2	20.0	N750
TZ03R300FR169	5.2	30.0	N750
TZ03P450FR169	6.8	45.0	N1200
TZ03P600FR169	9.8	60.0	N1200
TZ03Z500FR169	6.0	50.0	COG
TZ03R121FR169	10.0	120	N750

★All kits are available through authorized Murata Erie Distributors.

CAPACITORS— CHIP TRIMMING (continued)

★ **KIT-TZSBOX-4**

Part No.	Min. Cap.	Max. Cap.	T.C.
TZB04, 10 each value			
TZB04Z030BA	1.4pF	3.0pF	COG
TZB04Z060BA	2.0	6.0	COG
TZB04N100BA	3.0	10.0	N150
TZB04R200BA	4.5	20.0	N750
TZB04P300BA	6.5	30.0	N1200
TZB04P400BA	9.0	40.0	N1200
TZB04Z250BA	4.0	25.0	COG
TZB04R500BA	7.0	50	N750
TZC03, 10 each value			
TZC03Z060A110	2.0pF	6.0pF	COG
TZC03R100A110	3.0	10.0	N750
TZC03P200A110	5.0	20.0	N1200

POTENTIOMETERS— CHIP, TRIMMING

- Miniature size
- RVG4 Series, open frame
- POT3321A, sealed
- Easily adjustable with regular screwdrivers
- Large, solid axle not affected by vacuum chuck during auto-placement
- Solder coated terminals eliminate solder leaching in reflow solder operations
- RVG4F and H Series available on 12mm tape and reel for auto-placement
- POT3321A Series available in magazine form only

★ **KIT-RVG4**
(Open)

Part No.	Res.
RVG4F, 25 each value	
RVG4F03A-101VM	100 ohms
RVG4F03A-201VM	200
RVG4F03A-301VM	300
RVG4F03A-501VM	500
RVG4F03A-102VM	1K
RVG4F03A-202VM	2K
RVG4F03A-302VM	3K
RVG4F03A-502VM	5K
RVG4F03A-103VM	10K
RVG4F03A-203VM	20K
RVG4F03A-503VM	50K
RVG4F03A-104VM	100K
RVG4F03A-204VM	200K
RVG4F03A-504VM	500K
RVG4F03A-105VM	1M
RVG4H, 25 each value	
RVG4H01A-101M	100 ohms
RVG4H01A-201M	200
RVG4H01A-301M	300
RVG4H01A-501M	500
RVG4H01A-102M	1K
RVG4H01A-202M	2K
RVG4H01A-302M	3K
RVG4H01A-502M	5K
RVG4H01A-103M	10K
RVG4H01A-203M	20K
RVG4H01A-503M	50K
RVG4H01A-104M	100K
RVG4H01A-204M	200K
RVG4H01A-504M	500K
RVG4H01A-105M	1M

★All kits are available through authorized Murata Erie Distributors.

INDUCTORS—CHIP

Miniature size
Available in ferrite and ceramic cores
Wide standard inductance range—10nH to 2200μH
High Q at frequencies to 100MHz for ferrite cores and to 1GHz for ceramic core

★ **KIT-L-CHIP**

Part No.	Nom. Value	Tol.
LQN2A CERAMIC CORE, 25 each value		
LQN2A10NM04M00	10nH	±20%
LQN2A18NM04M00	18	±20
LQN2A22NM04M00	22	±20
LQN2A33NM04M00	33	±20
LQN2A39NM04M00	39	±20
LQN2A47NM04M00	47	±20
LQN2A56NM04M00	56	±20
LQN2A68NM04M00	68	±20
LQN2A82NM04M00	82	±20
LQN2AR10K04M00	100	±10
LQN2AR12K04M00	120	±10
LQN2AR15K04M00	150	±10
LQN2AR18K04M00	180	±10
LQN2AR22K04M00	220	±10
LQH3N FERRITE CORE, 25 each value		
LQH3NR27M92M00	0.27μH	±20%
LQH3NR39M92M00	0.39	±20
LQH3NR56M92M00	0.56	±20
LQH3NR68M92M00	0.68	±20
LQH3NR82M92M00	0.82	±20
LQH3N1R0M04M00	1.0	±20
LQH3N1R2M04M00	1.2	±20
LQH3N1R5M04M00	1.5	±20
LQH3N1R8M04M00	1.8	±20
LQH3N2R2M04M00	2.2	±20
LQH3N2R7M04M00	2.7	±20
LQH3N3R3M04M00	3.3	±20
LQH3N3R9M04M00	3.9	±20
LQH3N4R7M04M00	4.7	±20
LQH3N5R6M04M00	5.6	±20
LQH3N6R8M04M00	6.8	±20
LQH3N8R2M04M00	8.2	±20
LQH3N100K04M00	10	±10
LQH3N120K04M00	12	±10
LQH3N150K04M00	15	±10
LQH3N180K04M00	18	±10
LQH3N220K04M00	22	±10
LQH3N270K04M00	27	±10
LQH3N330K04M00	33	±10
LQH3N390K04M00	39	±10
LQH3N470K04M00	47	±10
LQH3N680K04M00	68	±10
LQH3N101K04M00	100	±10
LQH3N151K04M00	150	±10
LQH3N221K04M00	220	±10
LQH3N331K04M00	330	±10
LQH3C FERRITE CORE, 25 each value		
LQH3C1R0M04M00	1.0μH	±20%
LQH3C2R2M04M00	2.2	±20
LQH3C4R7M04M00	4.7	±20
LQH3C100K04M00	10.0	±10
LQH3C220K04M00	22.0	±10
LQH3C470K04M00	47.0	±10
LQH3C101K04M00	100.0	±10
LQH3C221K04M00	220.0	±10
LQH3C331K04M00	330.0	±10
LQH4N FERRITE CORE, 25 each value		
LQH4N391K-TA	390μH	±10%
LQH4N471K-TA	470	±10
LQH4N561K-TA	560	±10
LQH4N681K-TA	680	±10
LQH4N821K-TA	820	±10
LQH4N102K-TA	1000	±10

DESIGN ENGINEERING KITS

EMI/RFI FILTERS— CHIPS

- For surface mount applications
- Extremely small size
- For DC and sequel applications

★ **KIT-EK115A**

Part No.	Qty.	Type
BLM21B03	20	Chip Solid Inductor
BLM21A05	100	
BLM31A02		
BLM32A06		
BLM32A07		
BLM41A01		
NFM41R00C220	40	Chip EMI Suppression Filter Solid type
NFM41R00C470		
NFM41R00C101		
NFM41R00C221	40	Chip EMI Suppression Filter Solid type
NFM41R00C471		
NFM41R10C102		
NFM41R10C222		
NFM41R10C223		
NFM61R00T361	20	Chip EMI Suppression Filter
NFM61R10T102		
NFM61R20T332		

EMI/RFI FILTERS— POWERLINE

- For AC power line filtering
- Small size
- Wide selection of attenuation characteristics

★ **KIT-EK025B**

Part No.	Qty.	Type
PLA1022A	2	Compact Common Mode Choke Coil, Non-Case Type
PLA3021A	2	
PLA5021A	2	
PLA8021C	2	Case-Type
PLH11L-6003R3	2	High Frequency Common Mode Choke Coil
PLA1511R5	2	
PLE25H-1531R	1	Common Mode Choke Coil
PLE25H-2023R	1	
PLC20LD-3031R	1	
PLC20HD-7030R5	1	
ESR1100-56E222M VA2-EA	10	Safety Standard Recognized EMIFIL® For AC Power Supplies
DSR1120-56 E302M VA2-EA	10	
DSR1150-56 E472M VA2-EA	10	Safety Standard Recognized EMIFIL® For AC Power Supplies
DSR1100-56 FZ472P VA2-EA	10	
PLI-A0302	1	Noise Filter For AC Line Applications
PLI-C1030	1	
PLI-D0303	1	
PLI-E0303	1	
PLI-S0303	1	
PLF-C1030	1	
PLT1R53C	5	Common Mode Choke Coil
BNX002-01	5	DC Power Line Filter
BL02RN2-R62	50	Ferrite Bead

EMI/RFI FILTERS— COMPUTING DEVICES

- For PCB application
- For DC signal line filtering
- Wide selection of values

★ **KIT-EK015C**

Part No.		Qty.	Type
BNX002-01		3	DC Powerline Filter
BNP002-03		3	Signal Line Filter
DF221-601SS152GMV50		30	Subminiature Semiconductor
BL01RN1-A62		50	Ferrite Bead Inductors
BL02RN2-R62		50	
BL03RN2-R62		50	
BLM31A02		20	Chip Ferrite Bead
BLM41A04		20	
DS306-55Y5S470M	50V	20	3 Lead Disc Filter
DS306-55Y5S101M	50V	20	
DS306-55Y5S271M	50V	20	
DS306-55Y5S102M	50V	20	
DS306-55Y5S222M	50V	20	
DS306-55FZ103Z	50V	20	
DSS306-55Y5S220M	100V	50	3 Lead Disc Filter With Ferrites
DSS306-55Y5S470M	100V	50	
DSS306-55Y5S101M	100V	50	
DSS306-55Y5S221M	100V	50	
DSS306-55Y5S471M	100V	50	3 Lead Disc Filter With Ferrites
DSS306-55Y5S102M	100V	50	
DSS306-55Y5U222Z	100V	50	
DSS306-55FZ103N	100V	50	
DSS306-55FZ223Z	16V	50	
DS310-55Y5S223S	50V	20	3 Lead Disc Filter
DS310-55Y5S104M	16V	20	
DSS310-55Y5S2220M	100V	20	3 Lead Disc Filter With Ferrites
DSS310-55Y5S470M	100V	20	
DSS310-55Y5S101M	100V	20	
DSS310-55Y5S271M	100V	20	
DSS310-55Y5S222M	100V	20	
DSS310-55Y5S223S	100V	20	
DSS710-D223S12-22		5	Varistor/Capacitor
NFV610-655T2A106	100V	5	Noise Suppression Filter
NFV610-655T2A206	100V	5	
NFV610-655T2A506	100V	5	
NFV610-655T2A107	100V	5	

EMI/RFI FILTERS— HI-REL

- Meet MIL specifications
- Feed-thru low-pass types
- Eyelet and coaxial types
- Specifications included

★ **KIT-SMBX-00015**

Part No.	Qty.	Type
1250-003	5	Single
1270-016	3	Single
1280-060	2	Single
1216-001	3	Single
1289-004	3	Single
1293-000	3	Single
1293-001	3	Single
1221-001	3	Single
1214-001	10	Single
9900-381-6004	3	Coax
9900-381-6020	3	Coax
9051-100-0011	2	Coax
9011-100-2025	2	Coax
9011-100-2045	2	Coax
9001-100-1015	2	Coax
9200-303-0094	2	Coax
9011-100-1008	2	Coax
1263-339-5003	1	25 Pin "D" Adaptor

★All kits are available through authorized Murata Erie Distributors.

NOTES

NOTES

MURATA ERIE NORTH AMERICA

Regional Sales Offices:

Northeast	— 617-245-7880	Southwest	— 714-832-9972
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